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54.

THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1883-1884.

THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1883-84.

THE ANNUAL CALENDAR, published at Commencement by authority of the Board of Regents, is a record of the membership and condition of the University for the given University year, and also contains the courses of study and other announcements for the University year following.

The Calendar will be sent gratuitously, postage paid, to all persons who apply for it.

THE

UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1883-84.

BY THE UNIVERSITY

MINNEAPOLIS,

1884.

DAYS AND DATES.—1883-4.

1883.

JUNE	1.	THE VACATION BEGAN.
SEPTEMBER	4.	YEAR 1883-84 BEGAN.
	5. 6.	Entrance examinations.
	7. 8.	Examinations for advanced rank.
	11.	Recitations and lectures began.
NOVEMBER	27. 28.	Examinations.
	30.	First term (13 weeks) closed.
DECEMBER	5.	Second term began.

RECESS;

DECEMBER 21 TO JANUARY 8.

1884.

FEBRUARY,	26. 27.	Examinations.
	28.	Second term (12 weeks) closed.
MARCH	4.	Third term (13 weeks) began.
MAY	23. 24.	Examinations.
	27.	Senior class day.
	28.	Alumni day.
	29.	COMMENCEMENT.

For days and dates of the new year 1884-5 see almanac near end.

For contents, see last page.

THE BOARD OF REGENTS.

The Hon. HENRY H. SIBLEY, St. Paul, - - - -	1885
The Hon. THOS. S. BUCKHAM, M. A., Faribault, -	1885
The Hon. GREENLEAF CLARK, M. A., St. Paul, - -	1886
The Hon. CUSHMAN K. DAVIS, M. A., St. Paul, -	1886
The Hon. JOHN B. GILFILLAN, Minneapolis, - -	1886
The Hon. KNUTE NELSON, Alexandria, - - - -	1887
The Hon. JOHN S. PILLSBURY, Minneapolis, - -	1887

AND EX OFFICIIS,

The Governor of the State,
The Hon. LUCIUS F. HUBBARD, St. Paul.

The State Superintendent of Public Instruction,
The Hon. DAVID L. KIEHLE, M. A., St. Paul.

The President of the University,
WILLIAM W. FOLWELL, LL. D., Minneapolis.

THE OFFICERS OF THE BOARD.

The Hon. **Henry H. Sibley**, St. Paul,
President.

The Hon. J. B. **Gilfillan**, Minneapolis,
Recording Secretary.

William W. Folwell, Minneapolis,
Corresponding Secretary.

Mr. R. A. **Davison**, Minneapolis,
Treasurer.

THE EXECUTIVE COMMITTEE.

The Hon. **John S. Pillsbury**, Minneapolis.
The Hon. **John B. Gilfillan**, Minneapolis.
The Hon. **David L. Kiehle**, Minneapolis.

MEETINGS.

The annual meeting is fixed by the charter for the second Tuesday in December. There is a meeting on commencement day; other meetings occur as called by the president of the board.

The executive committee meet regularly on one of the last secular days of each month. See almanac in appendix.

OFFICERS OF INSTRUCTION.

William W. Folwell, LL. D., President, 1020 *Fifth St., S. E.*
Instructor in Political Science and Librarian.

Jabez Brooks, D. D., 1706 *Laurel Avenue.*
Professor of the Greek Language and Literature;
and in charge of the department of Latin.

Newton H. Winchell, M. A., Prof. Geol. & Min., *State St., S. E.*
State Geologist and Curator of the General Museum.

Charles N. Hewitt, M. D., *Red Wing.*
Professor of Preventive Medicine.

John G. Moore, B. A., 2850 *University Avenue S.*
Professor of the German Language and Literature.

Moses Marston, Ph. D.,* 2211 *Park Avenue.*
Professor of the English Language and Literature.

Christopher W. Hall, M. A., 904 *University Avenue S.*
Professor of Geology, Mineralogy and Biology.

John C. Hutchinson, B. A., 3806 *Nicollet Ave.*
Assistant Professor of Greek and Mathematics.

John S. Clarke, B. A., 413 *Monroe St., E. D.*
Assistant Professor of Latin (absent in Europe).

---

*Died July 11, 1883.

MATILDA J. WILKIN, B. L., 1413 *University Ave. S.*
Instructor in English and German.

MARIA L. SANFORD, 1401 *Sixth St., S. E.*
Professor of Rhetoric and Elocution.

WILLIAM A. PIKE, C. E., 2525 *University Avenue S.*
Professor of Engineering; and in charge of Physics.

JOHN F. DOWNEY, M. A., C. E., 801 *Seventh St., S. E.*
Professor of Mathematics and Astronomy.

JAMES A. DODGE, Ph. D., 417 *Eighth Ave., S. E.*
Professor of Chemistry.

CHARLES W. BENTON, B. A., 419 *Eighth Ave., S. E.*
Professor of the French Language and Literature.

WILLIAM H. LEIB, 284 *Pleasant Ave., Saint Paul.*
Instructor in Vocal Music.

EDWARD D. PORTER, M. A., *Experimental Farm*
Professor of the Theory and Practice of Agriculture.

WILBUR F. DECKER, B. M. E., 1227 *Fifth St., S. E.*
Instructor in Shop Work, Drawing and Physics.

HENRY M. WAITT, B. S., 1322 *Sixth St., S. E.*
Instructor in Engineering.

FRANKLIN STAPLES, M. D., *Winona.*
Professor of the Practice of Medicine.

DANIEL W. HAND, M. D., *Saint Paul.*
Professor of Surgery.

WILLIAM H. LEONARD, M. D., *Minneapolis.*
Professor of Obstetrics and Diseases of Women and Children.

PERRY H. MILLARD, M. D., *Stillwater.*
Professor of Anatomy and Physiology.

CLARENCE L. HERRICK, B. S., 81 *Sixth Street, S.*
Instructor in Zoology.

THOMAS PEEBLES, B. A., 410 *Seventh St., S. E.*
Instructor in Mental and Moral Philosophy and History.

O. J. BREDA, Ph. D. (Absent in Europe.)
Professor of the Scandinavian Languages and Literatures.

GEO. EDWIN MACLEAN, Ph. D., 425 *Eighth Ave. S. E.*
Professor of the English Language and Literature.

JULIET CORSON, Lecturer on Domestic Economy. *New York City.*

CHARLES E. SMITH, M. D., *St. Paul.*
Professor of Materia Medica and Therapeutics.

GEORGE W. WOOD, M. D., *Faribault.*
Professor of Diseases of the Nervous System, and of Medical Jurisprudence.

CHARLES SIMPSON, M. D., *Minneapolis.*
Professor of Pathology.

OTHER OFFICERS.

LETTIE M. CRAFTS, B. L., *Assistant Librarian.*

CHARLES F. SIDENER, B. S., *Assistant in the Chemical Laboratory.*

EMMA F. TRUSSELL, B. L., *Registrar.*

JOHN E. GALLOW, *Janitor.*

EDWIN ANTHONY CUZNER, *Superintendent of the Plant Houses.*

FACULTIES OF THE UNIVERSITY.

THE GENERAL FACULTY.

The President; Professors **Brooks**, **Winchell**, **Hewitt**, **Moore**, **Hall**, **Sanford**, **Pike**, **Downey**, **Dodge**, **Benton**, **Porter**, **Staples**, **Hand**, **Leonard**, **Millard**, **Smith**, **Wood** and **Simpson**; Assistant Professors, **Hutchinson** and **Clarke**. Secretary, Professor **Pike**.

Meets regularly on the first day of the year and of each term, and in all Saturday's in term time, at 4 P. M.

THE SPECIAL FACULTIES

I. Of the College of Literature, Science and Arts:

The President; Professors **Brooks**, **Moore**, **Hall**, **Sanford**, **Pike**, **Downey**, **Dodge** and **Benton**. Secretary, Professor **Downey**.

Meets regularly on the first Saturday in each month in term time, at 5 P. M.

II. Of the College of Mechanic Arts:

The President; Professors **Hall**, **Pike**, **Downey**. Secretary, Professor **Pike**.

Meets regularly on the second Wednesday in each term, at 4 P. M.

III. Of the College of Agriculture:

The President; Professors **Hall**, **Dodge** and **Porter**. Secretary Professor **Porter**.

Meets regularly on the second Thursday in each term, at 4 P. M.

IV. Of the College of Medicine:

The President; Professors **Hewitt**, **Staples**, **Hand**, **Leonard**, **Millard**, **Smith**, **Wood** and **Simpson**. Secretary, Professor **Millard**.

Meets regularly on the first day of the year in September, and on the third Monday in April.

GRADUATES

MASTERS OF ARTS, 2.

Rev. Graham Cox Campbell, B. A. 1879,	Gaboon Mission, Africa,	1880.
Willis Mason West, B. A. 1879,	Duluth,	1881

MASTER OF SCIENCE, 1.

Robert Henry Crafts, B. S. 1877,	Minneapolis,	1882.

BACHELORS OF ARTS, 64.

Warren Clark Eustis,	Hennepin County,	1873.
Henry Martyn Williamson,	Nicollet "	"
George Edwin Ricker,	Hennepin "	1874.
Andrew Russell Cass,	Canada,	1875.
Julius Elliot Miner,	Goodhue County,	"
*Simon Peter Starritt,	Wright "	"
John Sinclair Clarke,	Nova Scotia,	1876.
John Corrin Hutchinson,	Dakota County	"
William Edward Leonard,	Hennepin "	"
Graham Cox Campbell,	Nova Scotia,	1877.
Joel Nathaniel Childs,	Wisconsin,	"
Ebenezer Currie,	Fillmore County,	"
Frank Eustis,	Hennepin "	"
Fred Eustis,	" "	"
Stephen Mahoney,	Scott "	"
John Waldo Perkins,	Wright "	"
Charles Wilber Savidge,	Le Sueur "	"
Albert McClure Welles,	Ramsey "	"
Julian Clarence Bryant,	Nicollet "	1878.
John Hamilton Lewis,	Wright "	"

Thomas Rogers Newton,	Hennepin County,	1878.
Evan Roland Prichard,	Blue Earth "	"
Daniel Williams,	Iowa,	"
John Franklin Collom,	Hennepin County,	1879.
Etta Medora Elliot,	" "	"
John Finley Goodnow,	" "	"
Frank Smith McKean,	Washington"	"
Robert William Rhames,	Olmsted "	"
Chelsea Joseph Rockwood,	Blue Earth "	"
George Burt Thompson,	Hennepin "	"
Willis Mason West,	Stearns "	"
Cora Inez Brown,	Hennepin "	1880.
James Francis Bryant,	Nicollet "	"
Albert William Rankin,	" "	"
Wm. Wadsworth Williams,	Iowa,	"
George Briggs Aiton.	Nicollet County,	1881.
Samuel Gilmore Anderson,	Hennepin County,	"
Otway Wilkinson Baldwin,	Wright "	"
*William Cullen Bryant,	Nicollet "	"
Herbert Oscar Chowen,	Hennepin "	"
Emily Louise Hough,	Pennsylvania,	"
Charles Edward Kent,	Ohio,	"
William Leslie King,	Blue Earth County,	"
Quintin John Rowley,	Freeborn "	"
Fred Beal Snyder,	Hennepin "	"
James Bennet Gould,	Hennepin County,	1882.
Frank Healy,	Fillmore "	"
Andrew Franklin Hillyer,	Hennepin "	"
Carrie Warner Holt,	Fillmore "	"
Lydia Rossiter Holt,	" "	"
Frances Ada Knox,	Blue Earth "	"
Frank Nichols Leavens,	Rice "	"
Alexander Hamilton Nunn,	Dodge "	"
Eli Milton Skiff Pickett,	Freeborn "	"
Charles Myron Webster,	Goodhue "	"
Jesse Craig Wilson,	Rice "	"
Edward Payson Baldwin,	Dakota,	1883.
William Eastman Fay,	Massachusetts,	"

Edson Starr Gaylord	Hennepin County,	1883.
David Percy Jones,	“ “	“
Joseph Henry Locke,	Stearns “	“
Helen Louise Pierce,	Olmsted “	“
Martha Alma Sheldon,	Hennepin County,	“
Sumner Lincoln Trussell,	“ “	“

BACHELORS IN SCIENCE, 64.

Edward Chatfield,	Fillmore County,	1874.
Samuel Addison Rank,	“ “	1875.
Clark Stewart,	Hennepin “	“
Martha Appleton Butler,	Maine,	1876.
Robert Henry Crafts,	Hennepin County,	“
Lewis Singer Gillette.	Michigan,	“
Eugene Alvin Hendrickson,	Ramsey County,	“
William Herod Locke,	Hennepin “	“
Albert Preston Hendrickson,	Ramsey County,	1877.
*John Charles Kassube,	Hennepin “	“
Edwin Burnham Pribble,	“ “	“
Fred Leslie Couillard,	Hennepin County,	1878.
Nettie Getchell,	“ “	“
Judson Torrey Howell,	Houston “	“
Henry Clay Leonard,	(B.C.E., '75,)	“
Mary Warwick Robinson,	Hennepin “	“
Harvey Jay Smith,	Goodhue “	“
Myron DeVere Taylor,	Stearns “	“
William John Warren,	Rice “	“
Walter Barrett,	Dodge County,	1879.
Fred Capin Bowman,	Meeker “	“
Catherine Amelia Burnes,	Hennepin “	“
Timothy Edward Byrnes,	Meeker “	“
Evelyn May Champlin,	Hennepin “	“
*Addison Gage, Jr.,	Anoka “	“
Allen Jay Greer,	Wabasha “	“
Laura Alberta Linton,	“ “	“
George Henry Partridge,	Winona “	“
Etta Thompson,	Hennepin “	“

*Frederic Gerald Berry,	Hennepin County,	1880.
Horace Burnham Greeley,	Blue Earth "	"
Clarence Luther Herrick,	Hennepin "	"
Robert Peter Andrew Nix,	Brown "	"
Minnie Aurora Reynolds,	Clay "	"
Alva Lucius Roe,	Washington "	"
Gilman Walter Smith,	Goodhue County,	"
Harvey Page Smith,	" "	"
Lillian Sanborn Todd,	Hennepin "	"

Fred Leslie Bardwell,	Hennepin "	1881.
*Herbert John Broughton,	" "	"
Diana Burnes,	" "	"
George Sutherland Grimes,	" "	"
James Jennison,	Goodhue "	"
David Albert Locke,	Hennepin "	"
Samuel Allen Locke,	" "	"
Sarah Ellen Palmer,	Mower "	"
William Hines Savidge,	Le Sueur, "	"
Lilla Ruth Williams,	Blue Earth "	"

George Joseph Backus,	Goodhue County,	1882.
William Wyckoff Clark,	Blue Earth "	"
Alice Elizabeth Demmon,	Vermont "	"
Carrie Delania Fletcher,	Ramsey "	"
William Beans Linton,	Wabasha "	"
Henry Francis Nachtrieb,	Washington "	"
Rasselas Hamlin Prosser,	Fillmore "	"
Herbert Paine Shumway,	" "	"
Edward Duffield Neill Whitney,	Hennepin "	"

Robert Mowry Bell,	Hennepin County,	1883.
Frederic Henry Clarke,	Massachusetts,	"
Louise Elma Hollister,	Lincoln "	"
Edward Corydon Jones,	Hennepin "	"
George Nelson Salisbury,	Rice "	"
Charles Frederic Sidener,	Goodhue "	"
Emma Jane Ware,	Fillmore "	"

BACHELORS IN LITERATURE, 41.

Helen Mar Ely,	Winona County,	1875.
Matilda Jane Campbell,	Maine,	1877.
Viola Fuller,	Mower County,	"
Charlotte Adelaide Rollit,	Hennepin "	"
Mary Anna Maes,	Steele "	"
George Albert Wood,	Fillmore County,	1878.
William Lincoln Bassett,	Hennepin County,	1879.
Alvin Hildreth.	Freeborn "	"
William Winchester Keysor,	Blue Earth "	"
Marion Hooker Roe,	Washington "	"
Caroline Rollit,	Hennepin "	"
Martha Isabel West,	" "	"
Andrew Holt,	Carver County,	1880.
Joseph Elisha Horton,	Fillmore "	"
Lizzie Augusta House.	Hennepin County,	"
Bessie Summer Lawrence,	" "	"
Harlow Horace Bonniwell,	McLeod County,	1881.
Margaret Agnes Campbell,	Nova Scotia,	"
Lettie May Crafts,	Hennepin County,	"
Emma Elizabeth Grimes,	" "	"
William Edmund Harrington,	McLeod "	"
Emma Ernestine Maes,	Steele "	"
Bradley Phillips, Jr.,	Wisconsin,	"
Agnes Virginia Bonniwell,	McLeod County,	1882.
Grace Webster Curtis,	Iowa,	"
Arthur Edwin Dickerman,	"	"
Marie Louise Henry,	Hennepin County,	"
Mary Eliza Holt,	Fillmore "	"
Mary Nancy Hughes,	Hennepin "	"
Richard Hartwell Johnson,	Winona "	"
Louie Lillian Kilbourn,	Hennepin "	"
Emily Dana McMillan,	" "	"
Ada Eva Pillsbury,	" "	"
Harry Amy Strong,	Iowa,	"

Samuel Doak Catherwood,	Mower County,	1883.
Annie Harriet Jefferson,	Hennepin "	"
Kate Louise Kennedy,	" "	"
Sarah Pierrepont McNair,	" "	"
Anna Calista Marston,	" "	"
Janet Nunn,	Dodge "	"
Emma Frances Trussell,	Hennepin "	"

BACHELORS IN CIVIL ENGINEERING, 10.

Henry Clay Leonard,	Fillmore County,	1875.
Samuel Addison Rank,	" "	"
Clark Stewart,	Hennepin "	"
Lewis Singer Gillette,	Michigan,	"
Eugene Alvin Hendrickson,	Ramsey County,	"
Charles Edward Thayer,	Hennepin "	"
William Sanborn Dawley,	Wabasha "	1879.
Pierce Power Furber,	Washington "	"
William George Peters,	Hennepin "	1883.
Louis Orville Smith,	Le Sueur "	"

BACHELORS IN MECHANICAL ENGINEERING.

Charles Spencer Bushnell,	Hennepin County,	1878.
John Henry Barr,	Blue Earth "	1883.

BACHELOR IN ARCHITECTURE.

Walter Stone Pardee,	Hennepin County,	1877.

BACHELOR IN AGRICULTURE.

William Johnson Barrett,	Dodge County,	1882.

CERTIFICATE IN CIVIL ENGINEERING.

Alexander Martin Holcomb,	Hennepin County,	1883.

THESIS: — Iron Railway Bridge in Minneapolis.

THE UNIVERSITY.

HISTORICAL.

In the act creating the Territory of Minnesota, approved March 2d, 1849, the Congress of the United States granted two townships of public lands for the endowment of a university. By an act approved February 9th, 1851, two additional townships were granted for the same purpose.

In anticipation of this additional grant the territorial legislature of 1851, on the 13th day of February, passed an act providing for the establishment of "an institution under the name and style of

'THE UNIVERSITY OF MINNESOTA,'

and for its location 'at or near the Falls of St. Anthony."

The State Constitution, adopted by the people on the 13th day of October, 1857, confirmed the previous action, as follows:

> "The location of the University of Minnesota, as established by existing laws, is "hereby confirmed, and said institution is hereby declared to be THE UNIVERSITY of "the State of Minnesota. All the rights, immunities, franchises and endowments "heretofore granted or conferred, are hereby perpetuated unto the said university; "and all lands which may be granted hereafter by Congress, or other donations for "said University purposes, shall vest in the institution referred to in this section."—*Constitution, Article VII., Section* 4.

The present site had already been acquired and a wing of a building, ample and even magnificent in plan, was erected in 1857. The financial revulsion of 1857-8 checked the progress of the enterprise and left the institution heavily encumbered. The war of the rebellion supervening, the efforts of the officials in charge for its revival proved futile.

In 1864 the legislature appointed a special commission, to liquidate the accumulated indebtedness, by selling a portion of the public lands. At the end of 1867 all debts and obligations were reported as discharged.

THE UNIVERSITY practically dates its organization from the law of the State approved February 18th. 1868, entitled "An act to reorganize the University of Minnesota, and to establish an agricultural college therein." This act as modified in some details by an act approved March 4th, 1872, may be found printed in full in the calendar for the university year 1874-5. (See also General Statutes of Minnesota, 1878, Chapter 37.) The acts referred to may be said to constitute the CHARTER of the University.

The seventh section, placing the income to be derived by the State from the so-called "agricultural college land grant" at the disposal of the board of regents, imposes upon them, by obvious implication, the duty of carrying out the provisions of the act of congress making the grant referred to in said section. This act forms chapter cxxx of the laws of the United States, 1862, and is entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts." The full text may be found in the calendar for 1874-5.

A preparatory department was opened in October, 1867. In 1869 the first faculty, consisting of a president and eight professors, was formed, and the first college class was organized. The first annual commencement was held June 19th, 1873.

GENERAL PLAN.

Under the organic law the board of regents are authorized to establish any desired number of departments or colleges, the following, however, being specified:

"A DEPARTMENT OF ELEMENTARY INSTRUCTION;

"A DEPARTMENT OF SCIENCE, LITERATURE AND THE ARTS;

"A COLLEGE OF AGRICULTURE;

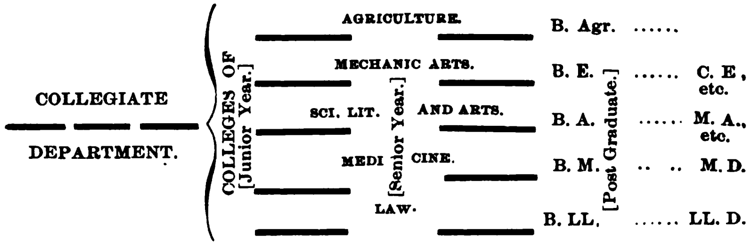
"A COLLEGE OF MECHANIC ARTS;

"A COLLEGE OR DEPARTMEMT OF MEDICINE;

"A COLLEGE OR DEPARTMENT OF LAW."

The College of Law has not been organized.

The relative position of these colleges or departments is illustrated by the following diagram:



THE DEPARTMENT OF ELEMENTARY INSTRUCTION, otherwise designated, by virtue of a by-law of the board of regents,

"THE COLLEGIATE DEPARTMENT,"

is introductory to the permanent colleges of the University. It includes, together with the work of the freshman and sophomore classes of the ordinary college courses, the remainder of the old preparatory department, so long as any may be retained.

This arrangement of departments emphasizes and formulates the growing tendency and custom of American colleges and universities to make the close of the second or sophomore year a branching point for the introduction of optional studies, and for certain professional or technical courses. It pre-supposes a separation of the secondary and superior epochs of education, and a corresponding assortment of studies. The high schools and other "fitting schools" of the State are thus invited to extend their work substantially up to the junior year. When at length this shall have been generally done, the University will as provided by law, dispense with the whole of the department of elementary instruction, and will extend her work on post-graduate ground. Among the advantages claimed for this genral plan may be named the following:

1. A faithful adherence to the letter and spirit of the laws, state and national, which have established and endowed the University, and

which contemplate it as a federation of literary, professional and industrial colleges, having each its own organization, faculty, buildings and equipment.

2. That, while offering the old college curriculum and discipline in their best forms to the literary and professional classes, the University will provide for the industrial classes that "liberal and practical education" required by law and public sentiment.

3. The separation of the natural epochs of secondary and superior education, and the ultimate liberation of the University from the elementary work of the former; and coinciding with this division, an advantageous assortment of studies, methods and discipline suitable to the two periods respectively.

4. A close and vital articulation of the University with the public school system of the State; and the elevation of the high schools by enlarging the recognized sphere of their instruction.

5. The elevation of the professional schools by requiring of candidates for degrees a good general education as a prerequisite for admission, while not insisting upon the impossible condition that all shall have gone over the whole of the old college course.

6. The elevation in particular of the colleges of agriculture and mechanic arts to equal rank and standing with other university colleges, and the separation of the studies and exercises properly belonging to them, from the elementary branches taught in primary and secondary schools; which branches it is not the business of COLLEGES to teach.

To put the above plan of organization into effect, the board of regents have from time to time enacted such by-laws as seemed to be necessary. See calendars for 1874-5 and 1876-7, appendix.

EQUIPMENT.

CAMPUS.

The University is situated in the city of Minneapolis, on the east side of the Mississippi river, about one mile below the Falls of St. Anthony, on an elevated bluff in full view of the same. The grounds are now about forty-five acres in extent, undulating in surface and well wooded with native trees. The plans for the embellishment of the grounds, made by Mr. H. W. S. Cleveland, of Chicago, will be carried out as fast as means can be afforded. Meantime such are the natural advantages of situation and contour, the grounds are very attractive.

The experimental farm of the Agricultural College is situated on Como avenue, about two miles distant.

BUILDINGS.

The general plan of the buildings contemplates a central academic building, and grouped around it, additional structures for the separate departments or colleges.

The legislature of 1881 appropriated the sum of $30,000 a year for six years for the erection and outfit of the following additional buildings: a farmhouse, a building for the college of mechanic arts, a military building, an astronomical observatory, a museum and a library.

The destruction of the state capitol by fire, in addition to other considerations has constrained the board of regents not to press upon the treasury for the immediate payment of these appropriations. The military building, which has been so planned as to serve the additional purpose of a large assembly hall, will be completed in May, 1884. In the course of the current year two or more other buildings will be put construction.

THE MAIN OR ACADEMIC BUILDING.

This building is 186 feet in length and 90 feet in breadth, exclusive of porches, having three stories above the basement. The walls are of blue limestone and the roof of tin. The rooms, fifty-three in number, as well as all the corridors, are heated by an efficient steam apparatus, and are thoroughly ventilated. Water is supplied from the city mains, and there is a standpipe running from the basement through the roof, with hose attached on all the floors, for protection against fire. The assembly hall, in the third story, 87x55 feet and 24 feet high, will seat with comfort 700 people, and 1,200 can be accommodated.

THE AGRICULTURAL COLLEGE.

For a view of this building see College of Agriculture, *infra.*

This is the first of the special buildings for the separate colleges. It is of brick on a basement of blue stone, 146x54 feet. The central portion is two stories in height. The south wing, 56x37 feet, is a plant house of double sash and glass. The north wing contains the chemical laboratory. There are class rooms for chemistry and agriculture, and private laboratories for the professors. A large room in the second story is occupied by the museums of technology and agriculture.

LABORATORIES.

THE CHEMICAL LABORATORY occupies five rooms in the north wing of the Agricultural College. (1) The main students' laboratory, 22x45 feet. This contains eight tables, accommodating sixty-four workers, in two sections or reliefs. Each table has water, gas, sink, shelving for reagents, drawers and cupboards for apparatus --all of the most approved construction. (2) The quantitative laboratory adjoining, 22x30 feet: (3) The apparatus room, provided with cases for storing apparatus, and tables for the balances. (4) The professor's private laboratory: (5) A room in the basement fitted up for assay and furnace work. All the rooms except the last are on one floor, are well lighted and ventilated, and communicate with each other in a convenient manner. The University is able to offer ample facilities for successful study and instruction in both general and analytical chemistry, and in the allied branches of study. Persons desiring chemical analyses should address the professor of chemistry.

THE PHYSICAL LABORATORY. The rooms in the main building devoted to the department of physics are so arranged and furnished that advanced students desiring to make a specialty of physics can have an opportunity to use the apparatus, and perform their own experiments.

THE MINERALOGICAL LABORATORY. This room is furnished with three double tables, accommodating eighteen students. Each table is provided with all the apparatus and reagents necessary for a complete series of blow-pipe tests, and for all the qualitative chemical work done in the determination of rocks and minerals.

Until the needs of the students in biology for workrooms of their own have been met, the anatomical and botanical work pertaining to the instruction in zoology and botany will be done in this same room. Since the laboratory work in the respective studies comes in different terms, this arrangement can be carried out for the present without inconvenience.

MUSEUMS.

THE GENERAL MUSEUM comprises the collections of the geological and natural history survey of the State, augmented by purchases and donations. The specimens are contained, so far as they are ready for exhibition, in rooms 51 and 52 of the main University building. In the south room, No. 52, are the geological and mineralogical specimens, in cases suitably arranged about the room; the suite of typical Minnesota rocks and minerals being in the large case in the center of the room. Upwards of 4,700 entries and 12,000 specimens, including duplicates, indicate the volume of this department of the museum, embracing species not only from the state of Minnesota, but from all parts of the world. Among these is a complete series of the zinc and iron minerals and their associates, from Franklin, Ogdensburg, and Bergen Hill, N. J., and a collection of sixty-four meteoric stones and irons from different parts of the world.

In the wall cases of this room are displayed the collections of Rev. H. C. Hovey, D. D., generously deposited by him for inspection by the members of the University and the public. They include a large number of unique "cave specimens" gathered by their owner from the famous Mammoth, Luray and Wyandot caves.

In the north room, No. 51, are upright cases filled with zoological specimens. These embrace specimens of some of the larger mammals and fur animals of the Northwest, birds, marine invertebrates, alcoholic preparations, and a set of Prof. Ward's casts of fossils, including the *Megatherium Cuvieri*, On.

Sets of the collections of the United States Fish Commission from the Atlantic and Pacific coasts, have also been presented by the Smithsonian Institution.

The Museum is rapidly growing in value by the accumulations of the geological survey of the State, and is constantly used for the illustration of scientific instruction. The rooms are open daily during the university year for the convenience and use of students and visitors.

Contributions and correspondence should be addressed to the curator, Prof. N. H. Winchell.

THE MUSEUM OF AGRICULTURE is designed to assist in illustrating the instruction in agriculture and horticulture. It comprises models of agricultural implements, seeds of grasses, grains and noxious weeds, in jars; grasses and grains in the straw; drawings and lithographs of machines and animals; fruits preserved in alcohol;

fertilizers, and other articles of interest to the farmer. Contributions are respectfully requested, and should be addressed to Prof. Edward D. Porter.

THE PLANT HOUSE is similar in purpose to the museum of agriculture. It is designed to furnish (1) means of illustrating the subject of botany, viz: specimens for analysis before the class, and living plants of botanic or economic interest that can not be grown in the open air in Minnesota; (2) means for illustrating the subject of horticulture, and the construction, heating and management of plant houses. This house has been doubled in capacity by a recent addition.

THE MUSEUM OF TECHNOLOGY.—A cabinet of specimens illustrating the products and processes of applied chemistry is being collected by the professor of chemistry, as opportunity offers. This collection will embrace fuel, ores, furnace products, textile materials, both raw and manufactured; dye-woods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woolen goods earthenware, pottery, etc. A good beginning has already been made, and it is hoped that large additions will be obtained during the coming year. Contributions are respectively solicited, for which due credit will be given. They should be addressed, in care of Prof. James A. Dodge.

THE CLASSICAL MUSEUM, a beginning of which has been made, will comprise all *materia* that may illustrate classical geography, topography, chronology, mythology, geography, archæology, and art, such as plans of ancient cities, temples, battle-fields, camps, etc.; busts (original and plaster casts); coins and medals; specimens (original and plaster casts) of ancient sculpture, friezes, capitals, columns, etc.; of vases, etc.; books and plates of costumes, military weapons, armor, household and agricultural affairs, and naval illustrations, etc.; architecture; ancient books and manuscripts; specimens of inscriptions and implements used in writing, and in the arts. Contributions may be sent to Prof. Jabez Brooks, D. D.

THE LIBRARY.

The number of bound volumes has reached nearly 15,000, and additions are constantly being made. Besides the books purchased of booksellers, the following collections have been acquired:

1. The Robertson collection of 1,200 volumes purchased from Col. D. A. Robertson, of St. Paul, formerly a professor in the University. This collection is rich in works on American history, Arctic travel and discovery, ethnography and political economy.

2. The Campbell collection of 2,800 volumes, selected by Prof. G. Campbell in London, Berlin, Florence, and other cities of Europe. This embraces many French, German and Italian works The subjects most numerously represented are philology, philosophy and social science, general literature, history and biography.

3. The Tappan collection, comprising 2,500 volumes from the private library of the late Rev. H. P. Tappan, D, D., LL. D., ex-president of the University of Michigan. This collection contains choice and valuable editions of standard English authors, numerous works on philosophical subjects, and many reviews and works of reference.

4. The State Library collection, being the miscellaneous books of that library turned over to the University by act of the Legislature of 1877.

The miscellaneous purchases have been confined to encyclopedias, dictionaries, bibliographical material, and works of first necessity for the various departments of instruction. Among the public documents are to be found sets of the Smithsonian publications, the coast survey reports, the survey of the Pacific railroad, Schoolcraft's Indian tribes, United States geological surveys, patent office reports, etc.

The alphabetical lists of authors, printed from year to year, serve a good purpose as a catalogue of authors, and furnish the titles for the printed card catalogue. There is a catalogue of subjects called "Finding Lists" kept for sale at 25 cents per copy.

The library and reading room occupy rooms 18, 20, 22, 24 to 28 in the first story of the main building. The books are shelved according to a simple classification upon a so-called "elastic system," which allows additions indefinitely without disturbing the existing arrangement and numbering.

The library is open to everybody eight hours every day of the university year except Sundays and holidays. Members of the University are allowed to borrow books for home reading, to be kept seventeen days; but works marked in the catalogue with a *, (called "starred books,") comprising books of reference, illustrated works, and rare and costly books cannot be removed. These works, as well as all others, may be read and consulted during the same hours, in the

READING ROOM,

where a number of periodicals are to be found; among them the following:

QUARTERLIES.

Journal of Speculative Philosophy, Bibliotheca Sacra, Westminster Review, London Review, Edinburgh Review, British Review, Mind, American Antiquarian, Geological Society's Quarterly, (Eng.) Journal of Philology, American Journal of Mathematics.

BI-MONTHLIES.

New Englander, Education, Ueber Land und Meer, The Analyst, Princeton Review, American Law Review.

MONTHLIES.

American Agriculturist Popular Science Monthly, Library Journal, Century, Atlantic, Harper's Monthly, VanNostrand's Engineering Magazine, Contemporary Review, North American Review, Deutsche Revue, Fortnightly Review, Nineteenth Century, American Journal of Science and Art, American Naturalist, Journal of the Franklin Institute, Monthly Reference Lists, Magazine of Art, Portfolio, Catholic World, American Chemical Journal, Blackwood, War Department Weather Report, Literary News, Canadian Entomologist, Botanical Gazette, American Microscopical Journal, Minnehahan, Siderial Messenger, Observatory, Modern Age, Annals of Mathematics.

WEEKLIES.

Littell's Living Age, Nation, Scientific American and Supplement, Nature, Harper's Weekly, Athenæum, Academy, Chemical News, Saturday Review, Glencoe Register, Glencoe Enterprise, Staats Tidning, Le Canadien, Revue Politique et Literaire, N. Y Witness, Labor Tribune, American Machinist, American Architect, National Journal of Education, Christian Statesman, Svenska Folkets Tidning, Folkebladet, Skandinavien, Lake City Review, Fargo Republican, Saturday Evening Spectator, Official Gazette of Patent Office, Justice, Present Age, Sanitary Engineer, Science, Home Journal, The Current, Chicago Mining Journal.

SEMI-WEEKLY. New York Tribune, New York Evening Post, Inter-Ocean.

DAILIES. Minneapolis Tribune, Minnapolis Evening Journal.

SEMI-MONTHLY. Literary World.

DRAWING ROOM.

Room 45 in the main building, 47x30 feet, is furnished with drawing tables for the use of classes in geometrical and free-hand drawing. There are also cases and cabinets for holding drawings and drawing boards. A considerable collection of prints, drawings and models for lessons and illustrations has been made.

WORK SHOPS.

The work shops of the college of mechanic arts are temporarily provided for in three rooms in the basement of the Agricultural College (1) The vise shop, containing two benches with double sets of drawers, so that thirty-two students can be accommodated in two reliefs. This shop is now provided with ten vises and the necessary tools for giving thorough instruction and practice in filing and chipping. (2) The forge shop, which contains eight forges and anvils, and all tools required for the usual manipulations of the blacksmith. This shop also contains a six horse power engine and boiler for furnishing power; a Sturtevant pressure blower for providing blast, and an exhaust fan for removing smoke and dust. (3) The wood-working shop, which contains eight complete sets of hand tools, a band saw and two circular saws run by the engine in the forge shop.

TESTING ROOM.

The Olsen testing machine of 50,000 pounds capacity has been placed in a room in the basement of the main building, where the various tests of the strength of materials are made.

APPARATUS.

No attempt has been made at display, but great pains have been taken to procure for the various departments the essential instruments and materials for illustration. The outfit of the chemical laboratory is not inferior to that of any college laboratory in the country. The physical apparatus serves all present essential purposes. A full set of U. S. standard weights and measures has recently been supplied through the Coast Survey office. They are stored in room 41, main building. Persons desiring to have weights and measures tested can apply to Professor Pike. For engineering instruments, see COLLEGE OF MECHANIC ARTS, *infra.*

The collection of PATENT OFFICE MODELS and Schrœder models for descriptive geometry are stored in substantial cases in room 45, main building.

FRUIT FARM ON MINNETONKA.

In the winter of 1878-9 the State Horticultural Society organized a movement intended to compliment and encourage in his further endeavors, Mr. Peter M. Gideon, of Excelsior, Hennepin county, the well-known discoverer of the Wealthy apple. The result was an appropriation by the legislature of $2,000 for the purchase of land, and of $1,000 per annum for the salary of a superintendent, the control being placed in the hands of the board of regents. By good fortune a piece of land of the most favorable situation and exposure, lying on the peninsula dividing the upper and lower lakes of Minnetonka, was secured. Mr. Gideon was appointed superintendent, and is carrying on promising experiments.

GENERAL INFORMATION.

ACCESS.

The University of Minnesota is accessible by means of all conveyances centering in the cities of Minneapolis and St. Paul. The present main entrance to the grounds is at the corner of Third street (or University avenue) and Fourteenth avenue Southeast. The eastern terminus of the street railways is one block distant; fare 5 cents.

HOW TO ENTER THE UNIVERSITY.

1. Report promptly for examination at the time and place announced and attend the sessions punctually, observing such directions as may be given.
2. At the hour appointed you will receive a numbered examination ticket. By this number you will be known to the examining professors.
3. Applicants holding certificates of the STATE HIGH SCHOOL BOARD for any branches, will deposit them with the registrar, and be excused from the examination in such branches.
4. So soon as the answers can be read and marked a statement of the merit obtained in the several studies will be furnished to each examinee.
5. An application for admission may thereupon be filed by successful candidates with the president. The blank furnished for that purpose is in the following form:

APPLICATION is hereby made for the admission of my........ ....as a student of the University of Minnesota.

It is my present intention, that if admitted *he* shall remain.......................... and I hereby engage not to withdraw *h* from the institution during term time,

except in case of sickness or other unavoidable necessity, nor at any time without due notice.

I further engage that if admitted, he will be regular and punctual in attendance upon all proper duties and exercises; and that he will refrain from injuring or defacing the grounds, buildings, enclosures, and furniture of the University, and that he will carefully use, preserve and return all books, instruments, specimens, arms and accoutrements or other property of the University, which may be entrusted to him, or which may in any manner come into his possession.

Conformity to the regulations and discipline of the University is hereby promised. The subjoined statements are made a part of this application.

Sign here........................ .Parent or Guardian.

STATE—

1. The candidate's FULL name.
2. The date and place of his birth.
3. The parent's or guardian's name; titles; occupation; post-office.
4. The school last attended, and the principal's name.
5. The course of study chosen.
6. Anything in regard to the candidate's health or habits of which the authorities of the University should be informed.

On the reverse is a blank vaccination certificate, which is required to be filled and signed by some practicing physician who is a doctor of medicine.

6. The successful applicants, having selected their courses of study, and paid the annual fee of five dollars for incidental expenses, receive each a registration card, which admits them to the classes.

BOARDING

THE UNIVERSITY HAS NO DORMITORIES. This is a matter both of necessity and policy: of necessity, because the State has not furnished money to build dormitories; of policy, because it is thought better for the students to be distributed among the people of the university city, amenable to the common laws and sentiments of society. The public bounty stops at furnishing free instruction, leaving to private hands the providing of maintenance.

Three methods of boarding are practiced:

1. Boarding in families. Good board can be found at reasonable prices, ranging from $4 50 upwards.

2. Club boarding. This has been practiced for several years, and is well organized. The price of board has not exceeded $2 50 per week.

Self-boarding, by individuals, or more commonly, by small groups or colonies composed of members of the same family, or of neighboring families. Rooms are hired, and furniture, provisions and fuel brought from home. When well managed, this is an excellent and very economical mode of living. Two dollars per week to each member may be set down as the cost.

Persons desiring to secure boarding for young ladies are advised to correspond with Professor Maria L. Sanford, who will gladly assist in making arrangements if desired.

EMPLOYMENT.

THE UNIVERSITY CAN NOT PROMISE EMPLOYMENT to those who desire to earn their living. The few places it can offer being always in the hands of old students, new-comers can not expect to get them. The following advice, derived from the observations of several years, is offered to young persons of limited means who want an education:

(1) If possible learn a good trade or art before coming to the University. Your chance for work will be greatly increased, and you can get better wages. (2) Bring some money with you—fifty dollars at least—on which to live until you find work. (3) If you want work you must look for it: it will not come to you at first. Be active, resolute and enterprising. (4) If you have to "pay your way" through college, resolve to take time enough to do it well without ruining your health. It is not essential that you be graduated with any particular class.

EXPENSES.

These depend largely upon the tastes and habits of individuals. The following statement is founded upon statistics furnished confidentially by a considerable number of older and more experienced students, under the heads of board, washing, fuel, lights, books and stationery, literary society, travel, clothing, miscellaneous.

The average necessary expenses of students boarding in families appears to be about $300; those of students boarding in clubs and otherwise, about $225.

INSTRUCTION IS FREE IN ALL DEPARTMENTS.

The only general university charge is the annual fee of $5.00 for incidental expenses. This fee must be paid before the student can join his classes, and no deductions are made for absence or late entrance. Labor charges depend upon the amount of materials used and breakages of apparatus.

Students provide their books and stationery. The literary society expenses are moderate.

DAILY ROUTINE.

Each week day except Monday is occupied with recitations, lectures, and exercises. The work begins at 8 o'clock, A. M., and continues throughout the day. A general assembly of students and faculty is held each day at [illegible] o'clock a. m. There are brief and simple religious exercises, and one or more rhetorical exercises are commonly performed by members of the upper classes.

Most public announcements are made at the assembly, but a written notice on the bulletin board must also be regarded as sufficient.

DISCIPLINE.

The University presumes that every member intends to do his duty and to behave himself decently. Good order, courtesy, punctuality and attentiveness are established customs of the University, which the student body take pride in maintaining.

Students of the various departments or colleges are amenable to their respective faculties; but in all cases of offenses against peace and order committed by students of whatever department or college, the general faculty has exclusive jurisdiction.

The following by-law of the board of regents is in force:

"Whenever any faculty of the University is satisfied that any student is not fulfilling or is not likely to fulfill the purpose of his attendance upon the University, or is for any cause unfit to remain a member of the same, the president shall so inform his parent or guardian; and if, after a reasonable time allowed, the said student shall not have been withdrawn, he may be dismissed by order of the general faculty."

STUDENT SOCIETIES.

The Students' Christian Association. This society was formed by students for the purpose of mutual moral and spiritual improvement. Devotional meetings are held weekly, and students are cordially invited to attend its meetings and aid in its work. The constitution provides for including all and excluding none who sympathize with the object of the association and desire to share in its work and benefits. Permission to erect a building on the campus has been given, and the association has made considerable progress in the raising the necessary funds. Any desired information in regard to the association may be obtained by addressing the president of the association at the University.

There are three literary societies recognized by the general faculty which furnish excellent and much-prized opportunity for practice in extemporaneous speaking and parliamentary procedure.

The orator of the literary societies at their joint annual meeting in Commencement week for the year 1883-84 is Hon. J. G. Woolley, M. A., of Minneapolis.

ALUMNI ASSOCIATION.

This association was organized in 1875. All graduates of the existing colleges of the University are members. The members of the board of regents and of the general faculty are honorary members. There are the usual officers charged with the customary duties. An executive committee conducts business not otherwise provided for. The annual meeting is on the day preceding Commencement, at 3 o'clock, P. M. The alumni attending commonly dine together after the public exercises on commencement day.

OFFICERS FOR 1883-4.

President,	REV. WM. H. LOCKE
Vice President,	MR. CHELSEA J. ROCKWOOD
Secretary,	MISS LETTIE M. CRAFTS
Treasurer,	MR. JOHN WALDO PERKINS
Historian,	PROF. JOHN CORRIN HUTCHINSON
Poet,	MR. ROBERT P. A. NIX
Alternate,	MRS. M. J. WILKIN
Toast Master,	DR. WM. E. LEONARD

GEOLOGICAL SURVEY.

The University is charged by law with the work of the geological and natural history survey of the State, under the direction of the board of regents. This survey has now been in operation since 1872, but has been confined principally to the geological portion of the work. More lately the regents have also ordered a beginning of botanical collections with a view to the creation of a full herbarium of the flora of the State; and instituted systematic observations and reports on the birds of Minnesota. The professors of the University are selected by the regents for carrying on the various branches of the survey, and the general museum is the place of exhibition of the collections.

The law creating the survey is comprehensive. It embraces not only a strictly geological survey, including a complete account of the rocks and minerals of the State, and their chemical analysis, but also a natural history survey, comprising an examination of all species of trees, shrubs, herbs, grasses, native or naturalized, and a complete account of the animal kingdom, as represented in the State, including all mammalia, fishes, reptiles, birds and insects. It also orders the tabulation of meteorological statistics and an investigation of the climatic peculiarities of Minnesota. It orders the collection of topographical and hypsometrical data, and the compilation of an accurate map, which, with the approval of the governor is to be the official map of the State. The law also requires a permanent exhibition to be made in the buildings of the University, for public inspection, free of cost, in well warmed and furnished rooms. The regents make annual reports of progress, and on the completion of any portion of the work, a final report thereof is made to the governor. The first volume of the final report, now in press, will be published about June 1, 1884.

INSTRUCTION.

GENERAL REGULATIONS.

1. The University is open, free of all charges for instruction, upon equal terms to all persons over fourteen years of age, whether residents of this State or not, who may pass the required scholastic tests and examinations, except such as may be excluded by the following resolution of the board of regents, adopted May 10th, 1876 :

> "***Resolved,*** **That in order to encourage preparatory work in the high schools and academies of the State, and co-operation by them with the University,** ***no applicant shall be admitted to the Collegiate Department, to pursue the studies of any regular class or course, who is entitled to receive and can actually receive the same instruction, in substance, in the public schools of the school district in which he legally resides.***"

2. The requirements for admission to the collegiate department, which is the usual avenue to the advanced courses and colleges, are stated under the head of that department.

3. Applicants for admission to the advanced or university courses proper, as candidates for degrees, are further examined in all the studies of the appropriate course of the collegiate department.

4. The faculties occasionally exercise the power of waiving the entrance examinations in the cases of applicants of advanced age who desire instruction in special studies. These applicants must, however, submit to such tests as may be necessary to enable the professors concerned to decide whether they are competent to receive the desired instruction. There is no "special course" of study which applicants may choose upon their own motion. Students are only allowed to *select their studies*, from the programmes of the regular courses, when in the judgment of the faculty concerned there is reason for so doing.

5. The university year, beginning on the Tuesday next before the 15th day of September, embraces thirty-eight weeks exclusive of recesses, and is divided into three terms. The first term has thirteen weeks, the second twelve, and the third thirteen weeks.

6. As a general rule each student, in whatever department, has three recitations or lectures a day for five days in the week, besides rhetorical, military and other exercises.

7. Students of any department or college may select studies of another department, under the direction of the faculties and professors.

8. Elective studies to count on standing, must, as a general rule, be chosen from corresponding years and terms.

9. The recitations and exercises of the various colleges or departments are conducted according to consolidated programmes, adopted from time to time by the general faculty.

10. The term programmes are arranged according to the wants of the regular students. Special students must select (in equivalent amounts) from the studies thus laid down.

11. Students in different courses are united in recitations whenever convenient.

12. The merit of students, as regards scholarship, is determined in the collegiate department, by means of recitations and examinations; in the colleges of the University by means of examinations only. The examinations[*] are habitually conducted in writing.

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[*] The examination questions being commonly written on the blackboard after the assembling of the classes, cannot be furnished to applicants.

COURSES OF STUDY AND DEGREES

ACADEMICAL DEGREES.

No honorary degrees are conferred by this University.

I. THE COLLEGIATE DEPARTMENT offers three courses of study, called classical, scientific and modern. The classical course has for its leading studies the Greek and Latin languages. The scientific course is characterized by a succession of elementary natural sciences. The modern course is distinguished by the prominence given to the modern languages. Students choose their courses at time of entrance, and do not change them except as allowed by vote of the general faculty.

At the close of his course in this department each student has his option whether to enter at once, with a fair preparation, one of the professional colleges, or to proceed with higher academical studies in the college of science, literature and the arts.

No degrees are offered in this collegiate department, but merely a "final certificate" upon a completion of a course.

II. THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS presents likewise three courses of study :

1. A COURSE IN ARTS ;
2. A COURSE IN SCIENCE ;
3. A COURSE IN LITERATURE.

These lead, respectively, to the degrees of BACHELOR OF ARTS, BACHELOR OF SCIENCE, BACHELOR OF LITERATURE.

MASTERS' DEGREES in science, literature and arts are conferred on all bachelors of this or any reputable college or university who, not sooner than two years after graduation, pass an examination on some prescribed line of classical, scientific or literary studies, and present a satisfactory thesis. See college of science, literature and the arts, *infra*.

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It is my present intention, that if admitted *he* shall remain........................ and I hereby engage not to withdraw *h* from the institution during term time, The following consolidations and assignments are now in force:

1. Physics is attached to the department of mechanical engineering.
2 Botany and zoology are in charge of the professor of geology.
3. History is attached to the department of mental and moral philosophy.
4. The Latin language and literature are in charge of the professor of Greek language and literature.
5. Industrial drawing and descriptive geometry are in charge of the professor of mechanical engineering.
6. Civil engineering and architecture are attached to the department of mechanical engineering.
7. No instruction is offered in fine arts or business.
8. In the department of education an annual course of lectures on the theory and practice of teaching is given.
9. Instruction in vocal music is offered once a week.

The following statements should be carefully examined by students and applicants in connection with the courses of study as tabulated further on.

I. MATHEMATICS.

PROFESSOR DOWNEY.

Mathematics, on account of its wide application in practical affairs, as well as its great value in cultivating accuracy of statement, logical reasoning, and habits of close mental application, occupies a prominent place in all the courses of study.

Admission to the sub-freshman class requires a good knowledge of arithmetic, elementary algebra, and plane geometry. Admission to the freshman class requires, in addition to these, solid geometry and the higher algebra of the sub-freshman year, as indicated below.

The branches are the same for all courses until the end of the sophomore year, and beginning, with the sub-freshman year, consist of solid geometry, higher algebra, plane and spherical trigonometry, and conic sections.

The aim is so to direct the work of this elementary course as to prepare the student to enter successfully upon the study of the higher mathematics and upon the applications of mathematics in mechanics, astronomy, surveying and engineering.

In geometry the student is required to furnish demonstrations for many theorems not demonstrated in the text book, and to solve practical problems dependent upon geometrical principles.

The sub-freshmen work in higher algebra embraces factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, radicals, simple equations, proportion, progression and variation. The freshman work in higher algebra embraces quadratic equations, inequalities, differentiation of algebraic and logarithmic functions, development of functions by the binomial formula, by indeterminate co-efficients, and by Taylor's formula, logarithms, and higher equations, including Sturm's theorem and Horner's method of approximation.

The student is impressed with the importance of trigonometry by having his attention called to its numerous elegant applications, and is made familiar with its methods and the use of its tables by being required to solve a large number of practical problems.

General or co-ordinate geometry is studied the first term with special reference to the conic sections, and the effort is to dwell upon such features as will make the work valuable to all, whether they pursue the study farther or not, and prepare them to understand the treatment of these curves in the subsequent course in astronomy.

The remaining mathematics (general geometry, differential calculus, and integral calculus) are required in the courses of civil engineering, mechanical engineering and architecture, and elective in the other courses.

General geometry is studied during a second term, with reference not only to the conic sections but to loci generated according to any law. Much attention is given to producing equations of loci whose law of development is known, and to constructing and discussing such equations. The conic sections are still further treated both by rectilinear and polar co-ordinates. After acquiring facility in the transformation of cò-ordinates, the student investigates the properties of plane loci by means of their equations.

In calculus the text book used is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed. One term is given to the differential calculus and its applications in the development of functions, testing of functions for maxima and minima, and treating of tangents, sub-tangents, normals, subnormals, direction and rate of curvature, evolutes and envelopes.

One term is given to the integral calculus and its applications in rectification of curves, quadrature of plane surfaces, quadrature of surfaces of revolution, cubature of volumes of revolution, and to deducing equations of curves.

II. ASTRONOMY.

PROFESSOR DOWNEY.

The course in astronomy, extending through two terms of the senior year, assumes a fair knowledge of elementary astronomy and geography of the heavens.

Descriptive astronomy, one term, is elective in all courses. It does not draw so largely from mathematics as does practical astronomy, but aims to give such information concerning the heavenly bodies and the laws by which they are governed as must be secured by every one who aspires to the possession of a liberal education. The student learns the methods of determining the figure, size, density and weight of the earth; the dimensions, distances, motions, physical character and telescopic appearance of the bodies constituting the solar system the nature of comets and meteors; the causes of many of the phenomena of the heavens; and the methods by which our knowledge of the fixed stars and nebulæ has been recently so much augmented. He thus obtains an enlarged conception of the universe and its great author. The text-book work is supplemented by lectures, especially upon the history of the science and upon recent astronomical discoveries and theories.

Practical astronomy, one term, is required in the courses of civil engineering, mechanical engineering, and architecture, and elective in all other courses. The work embraces the theory and use of instruments, the use of the ephemeris and nautical almanac, the various methods of determining time, latitude, longitude, methods of obtaining the parallax and position of celestial bodies, and of computing eclipses. The student is required to compute several eclipses before the time of their occurrence.

III. CHEMISTRY.

PROFESSOR DODGE.

During the first term of the sub-freshman year the students in the scientific course are required to take elementary general chemistry. This work corresponds nearly with Barker's chemistry as far as through ilicon, omitting the stoichiometrical parts.

In the freshman year the same students continue general chemistry, attending mainly to the chemistry of the metals and to organic chemistry. In the first term of the sophomore year they take up stoichometry and applied chemistry.

This work, embracing three terms, prepares the scientific students for their required work in qualitative analysis in the second and third terms of the sophomore year, and the elective work of the junior and senior years in problems of quantitative analysis and research.

The classical and modern students take in the third term of the freshman year a course covering most of the ground of elementary chemistry as presented in the shorter text books.

Scientific students of the sophomore class take analytical chemistry three times per week the second term, and twice per week the third term.

Students in all courses can elect analytical chemistry during the whole or a part of the junior and senior years. In the second term of the junior year a course of lectures on the history and theory of chemistry occupies two hours per week, while six hours are given to analytical chemistry.

The chemical laboratory is fitted up in the best manner, with apparatus and fixtures of the most approved construction. It is designed to furnish instruction in qualitative analysis to all students in the scientific course of the collegiate department, and in quantitative analysis and special research to all students of whatever department or college, who may desire or be entitled to such opportunities.

No charges are made for instruction, and only such charges for apparatus and chemicals as will cover actual cost to the institution. The charges for ordinary chemicals and apparatus will not exceed ten dollars per term. All glass ware and other apparatus are charged to the student at cost. The glass ware that is uninjured is received back at cost; other articles are received back under special regulations, generally at a discount of twenty per cent. The cost of apparatus will vary from two to five dollars per term, according to the care exercised by the student. To cover these expenses, students in analytical chemistry are required to deposit during the first week in each term, with the professor of chemistry, the sum of ten dollars, the balance of which after deducting the charges mentioned, is delivered to the student at the end of the term.

Scientific students desiring to prepare for the study of medicine are advised to take the scientific course with Latin, electing French in the sophomore year, German in the junior year, and analytical chemistry in the senior year.

Students desiring an extended course in chemistry are advised to take the scientific course with German, French in the sophomore year, and analytical chemistry in either or both the junior and senior years.

A special course may be arranged for students preparing for medicine, consisting of one term of qualitative analysis, followed by toxicology and the elements of physiological chemistry, and the preparation of vegetable and animal pharmaceutical products. A collection of specimen drugs for illustrating this branch of study, has been made.

A room in the laboratory is fitted up for the study of assaying, and this branch may be taken up with elective analytical chemistry.

IV. PHYSICS.

PROFESSOR PIKE.

A thorough knowledge of the elements of natural philosophy is expected on entrance of all scientific students, and is recommended to others.

Molecular physics is begun by the scientific section of the freshman class in the second term, and is continued by the same students during the first term of the sophomore year. Classical and modern students go over a general course in physics in the first term of the sophomore year.

The apparatus of this department having received a number of additions during the last year, is now used by the students themselves in solving various physical problems as well as by the instructor in illustrating principles.

In the first term, junior-mechanics is required of all students in the scientific course, and is elective to others. In the second term of the senior year engineering students are required and others are allowed to pursue an advanced course of study in the physical laboratory, making their own experiments and constructing or adapting their own apparatus in the workshop.

V. BOTANY.

PROFESSOR HALL.

The students of the classical and modern courses are required to take botany in the third term of freshman year. The text book used is Gray's Lessons and Manual. Laboratory work with the microscope accompanies the lessons in an elementary course in structural botany. Attention is also given to systematic botany.

In the third term, sub-freshman year, the scientific students take substantially the same course as is indicated above for the classical and modern courses.

In the third term, freshman year, an advanced course in botany is given to the scientific students. Its object is to give a more thorough knowledge of structural and physiological botany, and more skill in plant analysis. Economic botany is also taken up, and laboratory work two hours daily with the microscope familiarizes the student with vegetable anatomy. The instruction is made as practical as possible.

In the college of agriculture provision is made for a special course in botany with reference to the wants of students expecting to pursue farming.

VI. ZOOLOGY.

PROFESSOR HALL.

The course in zoology consists of one term's work required in the third term, sophomore year, of the scientific course, and another term's work, elective, in the first term junior year.

The work in each term is carried on in the laboratory with constant use of the compound microspe.

The required term's work consists of a careful study of a few types of the invertebrated animals. The protozoa, mollusks, insects and crustaceans take the chief part of the time, although the particular species or genera taken depends upon the supply the waters of the vicinity afford. Structural affinities are studied, and an examination made into the mechanical principles on which animal bodies are constructed, and into the ways and means by which the various functions of life are carried on. A careful consideration of these subjects leaves but little time for the study of classification. A good and constantly increasing collection of specimens, belonging to the general museum, is in daily use to illustrate the different topics as they are taken up in the class-room.

Following this short and general course, there is offered in the first term junior year, an elective course in principles of classification, embryology and comparative anatomy. Recitations, lectures and laboratory work, give the student a practical as well as theoretical knowledge of the science. Nothing like a complete course is aimed at; the vertebrates are more specially studied. The work taken up and the methods used are such that the student who desires the elements of comparative anatomy as the basis for his preparation for a professional life, or who desires to pursue his studies as an amateur in this rapidly developing field of natural history, can have a substantial starting point from which to advance.

VII. MINERALOGY AND GEOLOGY.

PROFESSOR HALL.

The junior class takes up mineralogy in the winter term. This is a required subject for the scientifics, and an elective one for the classicals and moderns. There is a lecture daily, and an equal amount of time is allotted each week to laboratory work.

The aim of the term's work is to give the student a knowledge of the principles of crystallography, and make him familiar with the physical characters and composition of the common minerals and rocks. As an aid in attaining these results, the laboratory work is important. This consists in a study of the most frequently occurring crystal forms from models and a good working collection of minerals, accompanying a course in qualitative blowpipe analysis.

In the senior year there is a course of general geology. The effort is made to adapt the course to the wants of students who have but the limited time of a single term to devote to the subject.

The aim here is to bring out the succession of leading events in the geological history of the earth, in a series of recitations and lectures in which statements of theories will be so introduced that they will show something of the historical development of the science.

In the following term a series of lectures in economic geology is offered. The course consists of discussions of the relations of geology to mining, and the origin and position of some of the most remarkable deposits of native elements and ores; to architecture, as in building materials, ornamental stones, &c.; and to the formation and constitution of soils.

The student of the science of geology in the university is furnished throughout with such aid as can come from a good supply of maps, models, specimens, and a Marcy's sciopticon with a suite of geological and mineralogical slides. By means of the constantly increasing collections gathered in the general museum of the university, specimens of all the great formations as they appear in different localities, can be compared and their resemblances and differences brought before the student. A series of Professor Ward's casts of fossils is in constant use in the study of historical geology.

Excursions to localities in the vicinity where the various sedimentary and igneous rocks of the state are exposed, give the students instruction of a practical character and an outline of the methods and practices of the field geologist.

A system of exchanges has been instituted and is being extended, by which the value of the museum to students and all others is being greatly increased. Correspondence and contributions of any kind, if of interest to science and of value to the students, are solicited, and may be addressed to the professor in charge.

*VIII. ENGLISH LANGUAGE AND LITERATURE.**

PROFESSOR MACLEAN.

The course in English, up to the close of the sophomore year, is consecutive and progressive. The design is to make the course a means of literary and linguistic culture, especially to such as do not choose to pursue other learned tongues. The aim is to give the student not mere theories of grammar, but a knowledge of the actual facts, usages and genius of the English language, as exemplified in the writings of the best authors, from the Anglo-Saxon, or first English period, down to the present. A few typical authors are chosen and studied in a manner similar to that usually adopted in the study of foreign tongues.

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*Some changes will probably be introduced at the beginning of the new year.

In the junior and senior years the work is designed for the students in all courses. In the third term junior year, all students are required to take English literature. In the first term senior year, the criticism of English and American orators is an elective study. In the third term senior year, a course of lectures is given, to such as may elect, on the philosophy of literature and on criticism.

COLLEGIATE DEPARTMENT.

SUB-FRESHMAN CLASS.

1st Term—Grammar and analysis, with the study of American authors; exercises in writing.

2d Term—Selections from Goldsmith (Hudson's) are studied with special reference to the structure of sentences and paragraphs and to the use of figurative language; exercises in writing.

3d Term—The poems of Scott and Wordsworth, the speeches of Burke, or the essays of Macaulay, studied as to matter and style; exercises in writing.

FRESHMAN CLASS.

1st Term—Abbott's "How to Write Clearly," with practice in composition and in the criticism of periodical literature in respect to clearness and precision of style.

2d Term—Milton's Paradise Lost (Books I. and II.) and minor poems, studied with reference to diction, derivation of words, figurative language, classical allusions, etc.; exercises in writing.

3d Term—The English of Shakspeare (Rolfe), with Abbott's Shakspearean grammar; English versification; exercises in writing.

SOPHOMORE CLASS.

1st Term—History of the English language (lectures), with Chaucer.
2d Term—Anglo-Saxon or early English.
3d Term—Anglo Saxon or early English.

UNIVERSITY CLASSES.

JUNIOR CLASS.

3d Term—History of English literature (lectures), with the reading of authors

SENIOR CLASS.

3d Term—The criticism of English and American orators; Goodrich's British Eloquence as text book, with lectures.

3d Term—Lectures on the philosophy of literature, and criticism.

IX. GERMAN LANGUAGE AND LITERATURE.

PROFESSOR MOORE.

German is required of all students in the modern course. Those of the scientific course are free to commence at the beginning of the sub-freshman year. Students of the classical and scientific courses may commence German in the junior year, and continue the same throughout the senior year.

Students intending to graduate in the college of mechanic arts, desiring to pursue German, must commence it in the sub-freshman year, as their time is fully occupied with professional studies in the junior and senior years.

First Year (sub-freshman class).

1st Term—Comfort's German course (35 lessons) with blackboard exercises in translating English into German.

2d Term—Comfort continued (16 lessons) twice a week, and Whitney's German Grammar (144 pages, coarse print only), and Whitney's German Reader (40 pages prose and verse).

3d Term—Whitney's German Grammar (completed) and Reader 40 pages, including "Das Lied von der Glocke" and "Kreuzzug des Kaiser Barbarossa."

Second Year (freshman class).

1st Term—Schiller's Egmont and siege of Antwerp, with a review of the complete grammar.

2d Term—German historical ballads, with German history and geography.

3d Term—Lessing's Minna von Barnhelm, and German composition.

Third Year (junior class).

1st Term—Schiller's Wilhelm Tell and Gœthe's Faust, first part.

2d Term—Lessing's Laocoon and Nathan der Weise.

3d Term—Deutsche Lyrik and history of German literature; lectures.

The objects aimed at in the above course of study are: (1) in the earlier stages, by means of oral and written exercises, to teach the student how to express himself with some degree of facility in German, on topics of every day life; (2) a systematic study of German grammar; (3) a critical reading of some of the masterpieces of German literature, with collateral instruction and research in geography, history, mythology, biography of the authors, etc.

X. FRENCH LANGUAGE AND LITERATURE.

PROFESSOR BENTON.

French is required of all students in the modern course, in the sophomore year of the collegiate department, and is an option for the other courses. French is offered as an elective in the senior year of all the colleges of the University. Classical and scientific students who have not previously had French can begin it in the senior year. The course during the past year has been as follows:

Sophomores.

1st Term—Bocher's Otto's French Grammar and Reader.

2d Term—Bocher's Course continued; LaFontaine's Fables.

3d Term—Bocher's Course completed; Feuillet's Roman d'un Jeunne Homme Pauvre; Biographies, des musiciens celebres.

Seniors.

1st Term—Racine's Andromaque; Corneille's Le Cid; Moliere's Misanthrope; Taine's Philosophie de l'art; French literature during the 17th Century.

2d Term—Scribe's Doigts de Fée; Victor Hugo's; Hernani; Taine's Philosophie de l' art en Italie; Chateaubriand's Réué and Le Dernier des Abencerages; Fleury's Histoire de France; French literature during the 18th century.

3d Term—Fleury's Histoire de France; De Vigny's Cinq-Mars; French literature during the 19th century.

So far as the progress of the classes allow, the conversational method is used in the class-room. The words already learned are framed into questions and answers. The object aimed at is to give the student a facility to think and express himself in the French language, as well as to read with fluency the works of French authors.

XI. LATIN LANGUAGE AND LITERATURE.

PROFESSOR BROOKS *in charge.*

The requirements for admission to the freshman class are:

1. Latin Grammar—Harkness' revised edition, or Allen & Greenough's, with Reader; Harkness' or Jones' recommended.

2. Composition—Harkness' Part II. or an equivalent.

3. Reading—Three books of Cæsar's Commentaries, with syntax; geography of Gaul; life of Cæsar and history of his times; four orations of Cicero, with syntax and history of the Catalinian conspiracy; four books of Virgil, with syntax; prosody; mythology; physical and political geography of Italy, with an outline of Roman history, until the 2d Punic war.

The freshman Latin is Livy, and Horace (begun), with Roman history and thorough review of syntax.

The sophomores read Horace (Odes, Satires, and Ars Poetica), and Tacitus. In connection with Horace the history of Roman literature is pursued, and with Tacitus the history of Rome under the emperors.

The seniors have oratory and philosophy.

The Roman method of pronunciation is followed.

VOWELS.

Sound of the long vowels—*a* as in *father; e* as in *prey; i* as in *machine; o* as in *no; u* as in *pool; y* as the French *u*, or the *i* above.

Sound of the short vowels same as above but shortened.

The long and short vowels are identical in quality, differing only in quantity.

DIPHTHONGS.

Give the constituent vowels their proper sounds, and pronounce them in their order as rapidly as possible, as:

ai and *ae*, like the English adverb *aye* (yes); *ou* like *ow* in *owl*, or as in German *Haus; eu* nearly as in *feud; ei* nearly as *feint*, putting the stress on the last vowel; *oi* nearly as *oy* in *joy; oe* as *o-eh; u* in *ua*, *ue*, *ui*, etc. as the English *w*.

CONSONANTS.

c is always hard, as *k; g* always hard as in *give; j* as *y* in *year; v* approximate to the English *w; r* with a slight trill, as *per* in *perry; s* always sharp as in *this; t* always simple, not as *sh; x* always as *ks; ng* as in *anger; nc* as in *rancor; nq* as in *banquet; qu* as in *queen; ch* like *k; th* as in *then; ph* as *f;* the other consonants as they are in English.

The full course in Latin is offered to scientific students, as such students can take French when seniors if they desire to do so.

XII. GREEK LANGUAGE AND LITERATURE.

PROFESSOR BROOKS.

1. Studies required for freshman class:

The requirements in Greek for admission to the freshman class are:

Greek Grammar (Hadley's preferred), and Boise's First Lessons in Greek; Xenophon's Anabasis, 3 Books, with composition based upon the text; Smith's History of Greece, the Introduction and Chapters 6 and 7 Book II; (to be read), Smith's History, Book III, and Chapter 36, Book V; also Grote's History of Greece, Chapters 69-71, inclusive.

A large amount of reading is not required for entrance to the freshman class, but a thorough, ready knowledge of the principles of Greek grammar—the vocal elements, elision, syllabification, euphony, quantity, accentuation, proclitics, enclitics, inflection, verbal elements, principal parts of irregular verbs, formation and composition of words, and syntax—is insisted upon. This lays a solid foundation for the rapid reading of authors at the time and place for such reading to be introduced, and makes room—by relieving the instructor from the necessity of an endless drilling in routine parsing—for the study of history, chronology, mythology, antiquities, etc., that stand connected with the authors read. During the past year a series of conversation exercises was prepared by the department, and used by the sub-freshman class, with very satisfactory results.

II. Subsequent studies:

The studies of the freshman, sophomore and junior classes are given in the general scheme of the course of study in summary; a fuller statement is here given:

FRESHMAN CLASS.

1. READING.—Xenophon's Memorabilia; Xenophon's Symposium and Hellenica, or Cyropædia; Demosthenes' Olynthiacs and Phillipics, or De Corona.*

2. COMPOSITION.—Exercises based upon the authors read.

3. COLLATERALS.—With Xenophon (for recitation), Smith's History, Sections 8-15, inclusive, Chapter 35, Book IV; (for reading) Grote's History, Chapter 68; with Demosthenes (for recitation), Smith's History, Chapter 42 and 46, and Sections 2, 3, 4, Chapter 48, Book VI; (for reading), Smith's History, Books IV, V and VI; Grote's History, Chapters 86-90, inclusive, and 95; Hermann's Political Antiquities of Greece; Plutarch's Lives (Demosthenes.)

SOPHOMORE CLASS.

1. READING.—One tragedy, Æschylus' Prometheus or Agamemnon, or Sophocles' Antigone, or Œdipus Tyrannus; Plato's Apology, Crito and Phædo, or Gorgias.

II ESSAYS—*Three* on the tragedy to wit: (if Prometheus be read:)

1. *An analysis* of the tragedy.

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*Lysias and Isocrates, with appropriate reading, will be interchanged with Demosthenes.

2. *Quotations* from other literatures suggested by and illustrative of passages found in the tragedy.

3. *Epithets* of Zeus, Prometheus, and the place of his punishment defined and classified.

And *three* on Plato to wit:

1. *An analysis* of the apology, embracing the court, the judges, the accusers, the indictment, the order of procedure, Socrates' method of defense and the order of argumentation.

2. *A sketch* of Socrates, his times, character, etc.; discussion of the daimonion, and the adequacy of his defence.

3. *A disquisition* on the sophists, and socrates' relation to them.

III. COLLATERALS.—With the tragedy (for recitation) Smith's History, Sections 1 to 7, inclusive, Chapter 35, Book IV; (for reading) Donaldson's Theatre, Blackie's Horæ Hellenicæ (article on Prometheus Bound); with Plato (for recitation) Smith's History. Sections 5 to 10 inclusive, Chapter 48, Book VI; and Sections 10 to 15 inclusive, Chapter 35, Book IV; (for reading) Grote's History, Chapters 69 and 68, Blackie's Wise Men of Greece, Blackie's Four Phases of Morals (article on Socrates.)

JUNIOR CLASS.

1. READING.—Homer's Iliad or Odyssey.

2. COLLATERALS.—(For reading) Grote's History, Chapters 15, 19-21, inclusive, Mure's History of Grecian Literature, Book II; Blackie's Horæ Hellenicæ (articles on Theology of Homer, and interpretation of Myths in Grecian Mythology.)

MISCELLANY.

Attic Greek is studied connectedly to the end of the sophomore year; the older dialects in the junior year. The amount of collateral reading can be extended according to the time and tastes of the student; that given above is required to be read. Lectures are given on the authors read as occasion may demand. Greek is pronounced according to the accents, and with the so called continental (modified somewhat) sounds of the vowels and diphthongs. The following are the general principles and methods of work in the department: in translation, the radical meaning of words is to be learned, but the precise signification in the passage rendered is to be given; the thing to be done in translating an author is to give his exact meaning in the best idiomatic, grammatical English; facts, allusions, tropes, history, chronology, mythology, topography, customs, arts, laws, grammatical forms and elements, etymologies and composition of words are to be attended to. Translation of English into Greek is based upon the author read. So far as the author himself is concerned, among the things to be noted are: the chief acts of the author's life; the contemporary history and political condition of the country, and the author's relation to them; the character of the people; and the expression and logical scope of his thought; and the wisdom, etc., of his views.

XIII. MENTAL AND MORAL PHILOSOPHY.

Mr. Peebles.

The course in Philosophy includes:

I. Logic, which is elective for all the juniors in the third term. The course includes:—(a) formal logic, comprising the laws of discursive thought according to both the Aristotelian and modern forms; (b) applied logic, treating of the methods of application in scientific investigation by induction and deduction. Prominence will be given to oral instruction and practical exercises.

II. Psychology, which is elective for the juniors in the second term. The course is given in lectures, and some of the topics discussed are: body and mind; sense-perception; association; self-consciousness; the mental faculties, and the relation of language to thought. One-third of the time is devoted to recitations, discussions and reviews.

III. The history of philosophy, which is open to the seniors in the first term. The course is given in lectures, and embraces a historical exposition of ancient and modern philosophy. The principles of the leading philosophers are expounded, and the historical relations of the succeeding systems are unfolded. The lectures are accompanied with recitations, discussions and reviews.

IV. Moral philosophy, which is required in the second term of the senior year. The course is given in lectures, and embraces, (1) a discussion of the history of ethics, ancient and modern; (2) an exposition of the principles of theoretical ethics, with their applications to actual conditions. One-third of the time is given to recitations, discussions and reviews.

V. Natural theology, which is elective in the third term of senior year. The course occupies two hours a week and is given in lectures. It embraces a discussion of the speculative basis of theism, and a review of the evidence of God's existence derivable from the constitution of nature and man.

XIV. HISTORY.

Mr. Peebles.

Applicants for admission are examined in the history of the United States and in the outlines of general history. The examination will be founded on Swinton's condensed history of the United States and Swinton's outlines of general history, or Freeman's general sketch, or equivalents.

The course in History includes:

I. Sub-Freshman Class—Ancient history, the first term, required, five times a week. Entrance examination in ancient history will be founded on Schmidt's, Rawlinson's or Thalheimer's manuals.

II. Freshman Class—Mediæval history, the second term, required twice a week.

III. Sophomore Class—Modern history, third term, required, twice a week.

In the historical course text-book instruction is combined with topical discussion and outside researches.

XV. POLITICAL SCIENCE, ETC.

Mr. Folwell.

Political economy and national economy are taught to the seniors in the third term by dictated and conversational lectures. These subjects are required of all students of the college of science, literature and the arts, and are elective for those of other colleges. The library is well supplied with standard authors on political and social science.

The aim of the instructor is to present clearly and fairly the history of the science, and to thoroughly inculcate established principles. On disputed topics the conflicting views are brought out with all possible impartiality.

Civil government is an elective for all seniors through the second term. The principal chapters of De Tocqueville's Democracy in America are gone over by way of introduction. The constitutions of the United States and of Minnesota are critically read and commented upon, and the leading titles of legislation discussed. City, county and township organization and administration are briefly treated.

In international law a course of ten lectures is given to the seniors electing the subject in the second term.

The history of civilization attached to this department is an elective to all juniors three times a week in the first term. The text-book is Guizot, but the students collect matter from numerous books of reference.

The subject of comparative philology, lately attached to this department, is an elective study for juniors of all departments, twice a week in the first term. The course of lectures embraces a general treatment of the following topics: history of philology, classification of languages, origin and development of language, mechanism of speech and hearing, written language.

XVI. RHETORIC AND ELOCUTION.

PROFESSOR SANFORD.

COLLEGIATE DEPARTMENT.

The following table shows the distribution of the work.

CLASS.	I. TERM.	II. TERM.	III. TERM.
SUB-FRESHMAN.	Compositions.	Elocution.	....
FRESHMAN.	....	Elocution.	Compositions.
SOPHOMORE.	Elocution.	Elocution.	Orations.

The work in elocution comprises class drill and declamation with individual training. In the freshman and sophomore classes, students are encouraged to present original pieces for declamation. The aim is to give to students a style manly, direct and clear; to avoid exaggeration and sham; and to enable them to read or speak with simplicity and grace.

In composition weekly exercises are required upon subjects assigned. It is intended by constant practice to give the students ease and readiness in writing, and by the subjects selected to accustom them to think, and to express their thoughts forcibly and correctly upon such topics as educated people need to handle. In the third term of the sophomore year three orations are required, of which one at least must be presented before the class.

All students in the sophomore class take rhetoric five times a week during the second term. In this study the aim is not so much to teach the rules and formulas of a text-book as to acquaint the pupil with the beauty and strength of our English tongue when correctly used; by the study of the best authors and constant practice under criticism, to make familiar the essentials of vigorous and effective writing and speaking.

UNIVERSITY CLASSES.

At the beginning of the junior or senior year the students of the college of science, literature and the arts are allowed to choose between essay-writing and orations. Those who elect essay writing are each required to write, submit for criticism, and to read before their class two essays per term. Those who elect orations are each required to give one oration per term. Each oration is carefully criticised, then re-written, and, when approved, rehearsed in private, and then presented in public to the students and faculty.

Juniors and seniors in the college of mechanic arts are required to write papers on technical and professional subjects, which after examination by the professors of that college, are submitted to the professor of rhetoric and elocution for criticism as rhetorical exercises. The amount of writing required does not exceed that required of students of the same grade in the college of science, literature and the arts.

XVII. INDUSTRIAL DRAWING.

PROFESSOR PIKE.

Drawing and descriptive geometry are required of the scientific students of the Collegiate Department, are optional with the modern students during the entire course, and for the classical students during the first two years.

The course is as follows:

SUB-FRESHMAN CLASS—During the second term the students learn the use of the instruments, and draw a series of plates of geometrical problems, elementary projections and applications of projections.

A special text-book in pamphlet form has been prepared by the department for the use of students. It contains data for the required problems, directions for lettering, directions about the use of instruments, and an outline of the whole course of elementary drawing.

FRESHMAN CLASS.—The use of the text-book is continued during the first term. Additional examples of projections are first taken up after which instruction is given by means of models and machines, each student making sketches and taking actual measurements from which the final drawings are made. Tinting and shading are then taken up, and, after a number of practice plates are made, are applied to one or more projection drawings.

SOPHOMORE CLASS.—Descriptive geometry is taken up during the second term, especial attention being given to isometric and cabinet projections, linear perspective and the construction of shadows. In this as in projection drawing, the work is done as far as possible from sketches and measurements taken by the students themselves.

A text-book for the use of the sophomore class similar in plan to to the one in use by the students in the sub-freshman and freshman classes, is being prepared by the department, advanced sheets of which in the form of "blue prints" have been used this year.

INSTRUMENTS AND MATERIALS.

It is very desirable that a good quality of instruments should be secured by beginners, and it is advised that separate pieces be bought rather than sets in boxes, as better instruments can be obtained in that way. The instruments should be of German silver, and care should be taken that the compasses have needle points.

The following outfit is recommended to begin with:

A drawing board, thirty-one inches by twenty-three inches, a T-square, a pair of triangles, a hard pencil, a right line pen, a pair of compasses with pen, pencil and needle points, a pair of plain dividers, a scale divided for drawing to scales of one inch, one-half inch, one-quarter inch and one-eighth inch to the foot, a piece of India ink, a rubber, an irregular curve, six thumb-tacks and six sheets of Whatman's imperial drawing paper.

XIX. THEORY AND PRACTICE OF AGRICULTURE, ETC.

SEE COLLEGE OF AGRICULTURE.

XX. XXI. XXII. CIVIL ENGINEERING, MECHANICAL ENGINEERING, ARCHITECTURE.

SEE COLLEGE OF MECHANIC ARTS.

XXIII. MILITARY SCIENCE.

Department temporarily vacant—See calendar of 1882-3 for statement of the work.

XXIV. MUSIC.

PROFESSOR LEIB.

In this department there is at present a weekly exercise open to all members of the university. The instruction consists of short lectures on voice culture, with exercises in "position", "breathing", the movement and control of all those muscles that are properly employed in artistic singing; lectures and drills in sight reading, from simplest to most difficult music; analysis of musical structure; choir and chorus practice; suggestions as to method of teaching.

XXV.-XXXIV. ANATOMY AND PHYSIOLOGY, ETC.

SEE COLLEGE OF MEDICINE for details as to work in the several departments of this college.

THE COLLEGIATE DEPARTMENT.

THE FACULTY.

This department, as the common avenue to the several university departments and courses of study, is under the immediate control and supervision of the general faculty of the university.

OBJECT.

The object of this department is to furnish such discipline and information as will fit the student to pursue the higher academical studies of the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, or to enter upon the professional courses now offered in the COLLEGES OF AGRICULTURE, MECHANIC ARTS and MEDICINE and hereafter to be offered in colleges not yet opened.

ADMISSION.

The REGULAR ENTRANCE EXAMINATIONS begin on the second day of each university year. Examinations for entrance are commonly held by appointment in the month of June at the university. Candidates not presenting themselves at these times, apply to the general faculty for permission to be privately examined, stating satisfactory reasons for not attending at the stated examinations.

Certificates of the STATE HIGH SCHOOL BOARD are accepted and the holders are excused from examination in the studies named therein. No other certificates are now recognized.

I.

APPLICANTS for admission to this department are examined in the following studies:

(A) "PRIMARY EXAMINATION;"

In Common Requisites for All Courses.

1. ENGLISH LANGUAGE.—Including spelling, writing and the elements of English grammar and composition. Such a knowledge of etymology and the ordinary constructions of syntax as may be obtained from the school grammars of Reed and Kellogg, Brown or Greene is expected, and so much of English composition as may be obtained from Hart's Introduction, Swinton, or equivalent.

2. MATHEMATICS.—A thorough knowledge of *arithmetic*, from such treatises as those of Robinson, Wentworth, Olney, etc.

   The whole of *elementary algebra* as contained in Robinson's, Wentworth's or Olney's. or equivalent.

   Plane geometry from Wentworth's, Newcomb's or Olney's, or any equivalent work.

3. GEOGRAPHY.—So much as is contained in Harper's, Eclectic, or Winton's Common School Geography, or any equivalent works.

4. HISTORY.—The history of the *United States*, as contained in the text books of Quackenbos, Eclectic, or Ridpath, or their equivalent.

   The outlines of *general history* as contained in Swinton or Anderson, or equivalent.

5. PHYSIOLOGY.—The elements of *human physiology*, as given in Martin's, Dalton's or Hutchinson's Physiology, or equivalent.

6. ENGLISH OR LATIN.—[N. B.—The applicant elects between English and Latin.]

   The requirement in English is the *English grammar complete*, including analysis, as contained in the best school grammars.

   In Latin the requirement is *Latin grammar and reader*—Harkness's, or Allen & Greenough's

(B.) *Required in Addition for Each Course.*

1. FOR THE CLASSICAL COURSE.—

Greek Grammar, (Hadley's), and *lessons* in Greek (Boise's), or Goodwin and White instead.

Cæsar: Three books of Cæsar's Commentaries—Chase & Stewart's or Harkness's or Allen & Greenough's.

Cicero: Two orations—Chase & Stewart's or Harkness's or Allen & Greenough's.

2. FOR THE SCIENTIFIC COURSE.—

Physical geography, as contained in Warren's or Guyot's or Houston, or equivalent.

Natural philosophy as contained in Gage's, Avery's, Norton's, or equivalent.

Elementary astronomy as contained in Newcomb's or Lockyer's, or equivalent.

English Composition, as contained in Hart's large work, or equivalent.

English word analysis, as contained in Swinton's, or equivalent.

English history, as contained in Freeman's Old English History; applicants intending to pursue Latin will take in lieu of the last three studies, (viz: English composition, English Word-analysis and English history) the same Latin as above for the classical course.

3. FOR THE MODERN COURSE.—

English composition, as contained in Hart's larger work, or equivalent.

English word analysis, as contained in Swinton's, or equivalent.

English history, as contained in Freeman's Old English History.

Cæsar: Three books--Harkness's, or Allen & Greenough's.

Cicero: Two orations--Harkness's, or Allen & Greenough's, or, in lieu of the last two, the scientific studies required, as above, for the scientific course, viz: physical geography, natural philosophy, elementary astronomy.

Attention is directed to the following resolution of the board of regents regarding the preparation in Greek:

"*Resolved*. That candidates for admission to the classical course who have not been able to begin Greek in their public schools shall be allowed to do so in sub-freshman year, provided that such candidates shall be examined in the three English or scientific studies required of candidates for the modern course."

II.

Applicants for admission to the freshman class of the collegiate department will please refer to the tabulated courses of study for the sub-freshman class, and note the studies of the particular course to be chosen. Upon these they will be examined for admission to the freshman class. There will also be an examination in "Rhetoricals"—a recitation or reading for the oral part, and for the written part a short theme or narrative upon a subject assigned at the time.

III.

Applicants for the sophomore class will be further examined in the studies of the chosen courses in the freshman class.

IV.

"SPECIAL STUDENTS."

The general faculty have authority to admit applicants to select their studies from the regular courses. Application must be made in writing, setting forth the reasons and circumstances.

Applicants desiring to select their studies are examined in the following subjects, viz:

English language (as above), arithmetic and elementary algebra geography and United States history.

COURSES OF STUDY.

There are three courses of study in this department:

1. Classical, 2. Scientific, 3. Modern.

Applicants desiring to pursue Greek and Latin will select the classical course. Those desiring to pursue German and French, with or without Latin will select the modern course. Those desiring to pursue a course of scientific studies will select the scientific course.

Scientific students can take but one language at a time. This may be English, Latin, Greek, or German followed by French.

Scientific students will govern themselves in choice of language according to the following regulation:

"Scientific students are required, upon admission, to select the languages they will respectively pursue, and cannot thereafter change, except as allowed by vote of general faculty; provided, however, that scientific students shall be free to elect French at the beginning of the third year."

Applicants are free to select their courses of study upon admission, but cannot thereafter change them, except as allowed by a vote of the general faculty.

Each student completing a course receives a final certificate, which admits him to any appropriate college of the university, at the beginning of the junior year.

The following schedules do not include rhetorical, military, and other exercises, which are held according to appointment from time to time. Special students are not exempt from these exercises.

For the scheme of rhetorical exercises in this department now in force, see page 57; for that of the military exercises, see page 60.

As explanatory of the tables, which are necessarily compendious, the statements of the professors, under the head of "Instruction," on pages 35 to 60 should be carefully read by students and applicants for admission.

First Year—SUB-FRESHMAN CLASS (III.).

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek—*Xenophon*. 2. History—*ancient*. 3. Latin—*Cicero*.	1. Chemistry—*elements*. 2. History—*ancient*. 3. English—*American authors, &c.*, or Latin—*Cicero*, or German—(*begun*)	1. German (*begun*.) 2. History—*ancient*. 3. English—*Am. authors &c.*, or Latin—*Cicero*.
II.	1. Greek—*Xenophon*. 2. Algebra. 3. Latin—*Virgil*. 4. Drawing—*optional*. (5 hours.)	1. Drawing (10 hours). 2. Algebra. 3. English—*Addison, &c.*, or German (*continued*) or Latin—*Virgil*.	1. German (*continued*.) 2. Algebra. 3. English—*Addison. &c.* or Latin—*Virgil*. 4. Drawing—*optional*. (5 hours.)
III.	1. Greek—*Xenophon*. 2. Geometry (*completed*) 3. Latin—*Virgil*.	1. Botany—*elements*. 2. Geometry (*completed*.) 3. English—*Scott, &c*, or German—*selections*, or Latin—*Virgil*.	1. German—*selections*. 2. Geometry (*completed*.) 3. English—*Scott, &c.*, or Latin—*Virgil*.

Second Year—FRESHMAN CLASS (II.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek--*biography*.	1. Draughting (10 hours.)	1. German—*Lessing*.
	2. Higher Algebra.	2. Higher Algebra.	2. Higher Algebra.
	3. Latin—*Livy*.	3. English—*Abbott* or German—*Lessing*, or Latin—*Livy*.	3. English—*Abbott*, or Latin—*Livy*.
II.	1. Greek—*history, &c.*	1. Physics—*sound and heat*.	1. German—*Schiller*.
	2 Trigonometry (3). History—*mediæval* (2).	2. Trigonometry—(3). History—*mediæval* (2).	2. Trigonometry (3). History—*mediæval* (2).
	3. Latin—*Livy*.	3. English—*Milton*, or German—*Schiller*, or Latin—*Livy*.	3. English—*Milton*, or Latin—*Livy*.
III.	1. Greek—*oratory*.	1. General chemistry. (*continued*.)	1. German—*Gœthe*.
	2. Botany—*elements*.	2. Botany (*continued*)	2. Botany—*elements*.
	3 General chemistry. (*begun*.)	3. English—*Shakspeare* or German—*Gœthe*.	3. General chemistry (*begun*.)
	4. Surveying—*optional*.	4. Surveying—*required*.	4. Surveying—*optional*.

Third Year—SOPHOMORE CLASS (I.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COUSRE.	MODERN COURSE.
I.	1. Latin—*Horace.*	1. Applied chemistry.	1. French (*begun*).
	2. Physics (*begun*).	2. Physics (*continued*).	2. Physics (*continued*).
	3. English—*hist. English language*, or French (*begun*).	3. English—*hist. E. lang*, or French (*begun*), or Latin—*Horace.*	3. English—*hist. English language.* or Latin—*Horace.*
II.	1. Greek—*tragedy.*	1. Descriptive geometry. (10 hours.)	1. French (*continued.*)
	2. Rhetoric.	2. Rhetoric.	2. Rhetoric.
	3. English—*Anglo-Saxon* or French (*continued*).	3. English—*Anglo-Saxon*, or French (*continued*).	3. English—*Anglo-Saxon.*
		4. Analytical chemistry. (6 hours)	
III.	1. Greek—*philosophy.*	1. Zoology.	1. French (*continued*).
	2. Conic sections. (3). History—*modern.* (2).	2. Conic sections. (3) History—*modern.* (2).	2. Conic sections. (3). History—*modern.* (2).
	3. Latin—*Tacitus.*	3. English—*Anglo-Saxon*, or French (*continued*). or Latin—*Tacitus*	3. English—*Anglo-Saxon*, or Latin—*Tacitus.*
		4. Anal. chemistry (4h.)	

For junior and senior studies, see colleges of "science, literature and the arts," "mechanic arts," and "agriculture," *infra.*

1. The members of the sub-freshman class, and all students lately admitted, are required to attend courses of lectures as follows: (1) on the use of the library and their relations to the university, to be delivered by the president, in alternate weeks, during the first term of each year; (2) on books and reading, by the professor of English, in alternate weeks during the second term; (3) on health and hygiene, by the non-resident professor of public health, in alternate weeks during the third term.

2. Each student, whether regular or special, must have as a general rule, three recitations a day (15 per week), besides rhetorical, military and other exercises. The faculty, upon application in writing, may in their discretion, excuse a student from one or more studies or exercises, or may allow an additional study or exercise. Unless otherwise specially provided, all such indulgences cease with the term.

Changes in course of study, except in urgent cases, will be allowed only at the beginning of the year.

EXAMINATIONS.

1. Examinations in this department are held in every study at the close of each term. The marks for these are combined with the daily marks of recitations in such a way as to throw increasing weight upon the examinations as the student proceeds from year to year in his course. In order to be "passed" in any study or exercise, the student must obtain sixty-five per cent. of the available marks. The object of the marking system is to preserve, for the use of the faculty, a convenient record of the diligence and proficiency of the students, so far as these can be inferred from an average of numerous approximate judgments. Statements of standing will be furnished to parents or guardians at any time, upon request. Students receive notice of failures and deficiencies.

2. Students who have been unsuccessful in examinations are separated into two classes: (1) those who have "failed," (2) those who have been "conditioned," i. e. may pass on making up in a satisfactory manner certain specified parts of the subjects. Students who have "failed," are required to take the subjects over with a succeeding class. Students who have been "conditioned" must remove the conditions within two terms, or be regarded as having "failed."

3. All examinations are conducted in writing, but any professor or instructor in charge, may add such oral questions as he may deem proper.

4. No student of the collegiate department can be advanced in rank whose conditions amount in the aggregate to more than one term's work. No student can receive a final certificate of dismission from the collegiate department who has any condition whatever.

5. *Particular attention* is called to the following rules:

I. All examinations of students of the collegiate department other than the regular term examinations of classes or sections are designated "special examinations."

II. Public special examinations will be held as follows:

(1) In the first week of the first term in connection with the regular annual entrance examinations.

(2) In the last week of the second term beginning on Thursday morning. The programme of this examination will be made to accommodate all students who may give two weeks notice.

III. No other special examination shall be held except by vote of the general faculty—upon application in writing.

IV. The regular class examinations being regarded as a part of the course of instruction, and the merits of students being only partly determined by them, are calculated for students who have received the instruction of the class. Persons, therefore, who have not attended the instruction in whole or in part will be examined so as fully to test their proficiency.

Public special examinations are adapted to the following cases:

(1). Of students who have been unsuccessful in the regular examinations.

(2). Of students, who for reasons satisfactory to the faculty, have been absent from the regular examinations.

(3). Of students intending to be absent, for reasons approved by the faculty, who desire to be examined in advance of their classes.

(4). Of students who are allowed by the faculty to be advanced in rank upon examination without attending the class instruction.

REGULATIONS.

1. Students pledge themselves in their applications to be regular and punctual in attendance upon all proper duties and exercises.

2. All students of this department are required to attend the daily assembly. Absentees present their excuses, stating reasons, to the president.

3. Absentees from recitations or exercises present their excuses on the proper blank to the professor in charge, at the next attendance.

4. Absentees from examinations present their excuses in writing to the general faculty.

5. Students who have been unable to prepare for a recitation or exercise, present excuses in writing to the professor in charge on entering the room.

6. Students who are absent from all university duties for six consecutive days without leave, and do not report the cause of such detention, are dropped from the rolls and forfeit their registry.

7. Students desiring to be absent for some time, apply in writing, on the blank provided, to the general faculty for leave of absence.

8. Unexcused absences, unexcused failures to prepare lessons and perform duties, and misdemeanors, are recorded, and demerit marks are charged. When a student has accumulated ten such marks he receives a first warning; when fifteen, a second warning is given, and notice sent to his parent or guardian, if practicable; at twenty, the student is *ipso facto* suspended during the pleasure of the general faculty.

9. These regulations apply to special as well as regular students in this department.

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

THE FACULTY.

Professors BROOKS, DOWNEY,
MOORE, DODGE,
HALL, BENTON,
SANFORD, PIKE,
THE PRESIDENT.

ADMISSION.

Applicants who have completed courses of study in the collegiate department are entitled to admission to the corresponding courses of this college upon their final certificates. No person can obtain admission to regular standing who has any conditions below junior year. Other applicants, if candidates for graduation, must pass equivalent examinations. Persons desiring to pursue special studies in this college apply in writing to the faculty of the college, and submit to such tests as the faculty or the professors require.

OBJECT.

This college is intended to furnish higher courses of LIBERAL studies leading to the customary academical degrees. Much of the instruction is given by lectures, and in general the methods and discipline are those proper to university students.

COURSES OF STUDY.

There are three regular under-graduate courses, as given below. They are arranged according to the following principles:

1. There are in general in each course fifteen hours per week of recitations and lectures, besides rhetorical and other exercises not shown in the schedules.

2. There are five hours per week of prescribed, and at least ten of optional or elective work.

3. The required studies of any two courses are electives with reference to the third course.

JUNIOR YEAR.

1st term—	*Required.* In the classical course: Greek—*Homer*. In the scientific course: physics—*mechanics*. In the modern course: German—*Gœthe*, *Elective.* History of civilization (3), comparative philology (2), analytical geometry, analytical chemistry, zoology.
2d term—	*Required.* In the classical course: Latin—*comedy*. In the scientific course: mineralogy. In the modern course: German—*Lessing*. *Elective.* Logic, differential calculus, analytical chemistry (3), and theoretical chemistry (2).
3d term—	*Required..* In all courses: English literature. *Elective.* Psychology, integral calculus, analytical chemistry, Latin (philosophy), German (literature.)

SENIOR YEAR.

1ST TERM-	*Required.* In all the courses: geology. *Elective.* History of philosophy, English literature (British and American oratory), analytical chemistry, astronomy, French.
2D TERM —	*Required.* In all the courses: ethics. *Elective.* Civil government (4), French, anal. chemistry (4), economic geology (4), sanitary science (1), international law (1).
3D TERM —	*Required.* In all the courses: political economy. *Elective.* Practical astronomy, French, analytical chemistry, English literature (2), natural theology (2), anthropology (1). The instruction closes with the tenth week of the term; the examinations take place in the eleventh week.

1. When not otherwise indicated by an appended figure, the studies and exercises named in the tables occur five times in the week.

2. In regard to rhetorical work, students in this college are authorized to choose between essay-writing and orations. Essayists are required to write two essays per term. Orators are required to write and deliver one oration per term. See page 58.

3. Students of the classical and scientific courses, who begin German in the junior year are at liberty to continue it as an elective during the senior year.

4. Classical and scientific students who have not previously had French, can begin it in the senior year.

5. Seniors are allowed to elect the mathematics of the junior year.

GRADUATION.

Students completing courses of study to the satisfaction of the faculty of the college are entitled respectively to receive the appropriate baccalaureate degrees, to wit; bachelor of arts, bachelor of science, bachelor of literature.

Any person may undergo, at suitable times, examination in any subject; and if such a person pass in all the studies and exercises of a course, he is entitled to the appropriate degree.

MASTERS' DEGREES.

Masters' degrees in science, literature and the arts are conferred on all bachelors of this or of any other reputable college or university who, not sooner than two years after graduation, pass an examination on some prescribed line of classical, scientific or literary studies and present a satisfactory thesis.

The following regulations are now in force:

Candidates are required to present their applications on the proper blank, stating the particular degree desired, the several subjects selected by them on which to be examined and the titles of their theses. After the approval of the applications by the faculty of the college, no changes or departures can be permitted. Graduates of other colleges or universities will exhibit their diplomas on filing their applications.

REQUISITES FOR THE MASTERS' DEGREES.

MASTER OF ARTS.

1. A satisfactory examination,

(*a*) upon two classical authors, [Latin or Greek].

(*b*) upon any three distinct subjects selected from the following branches.

1. Mathematics, pure or applied.
2. Science, natural or physical.
3. Philosophy.
4. Political science.
5. History.
6. Modern languages, (English included.)
7. Philology.

2. A thesis on a classical subject.

MASTER OF SCIENCE.

1. A satisfactory examination.

(*a*) upon two distinct branches of natural or physical science:

(*b*) upon any three distinct subjects selected from the following branches:

1. Mathematics, pure or applied.
2. Science theoretical.
3. Philosophy.
4. Political science.
5. History.
6. A language, ancient or modern.
7. Philology.

2. A thesis on a scientific subject.

MASTER OF LITERATURE.

1. A satisfactory examination.

(*a*) upon two modern authors, [German or French.]

(*b*) upon any three distinct subjects selected from the following branches:

1. Mathematics, pure or applied.
2. Science, natural or physical.
3. Philosophy.
4. Political science.
5. History.
6. A language, ancient or modern.
7. Philology.

2. A thesis on a literary subject.

EXAMINATIONS.

The proficiency of students of this college in the various departments of instruction is ascertained by means of examinations only. The principal examination in any subject takes place at the end of the term. Intermediate examinations are held during the term, without notice, at the discretion of professors. The results are combined and reported on a scale of one hundred. The merits of the rhetorical and other exercises are reduced to the same scale at the end of each term. A minimum mark of seventy-five per cent. in each study and exercise is necessary to "pass."

REGULATIONS.

Students of this college are expected to attend the daily assembly, and are required to be present when appointed to deliver public rhetorical exercises.

Absentees from lectures, recitations and other duties, report their excuses to the professors concerned. Five unexcused absences give occasion to a warning, and three additional ones to suspension.

No student may have less or more than fifteen hours* of work per week, unless by consent of the faculty; and no member of this college can become a candidate for graduation in another department or college without leave of the faculty first obtained. A resolution of the board of regents forbids the enrollment of any person as a senior who has any uncompleted work below that rank.

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*NOTE—Analytical chemistry and laboratory work in general require double hours.

THE COLLEGE OF MECHANIC ARTS.

FACULTY.

Professors **Hall**, **Downey**, **Pike** (Secretary),
The President.
Instructors: **Decker** and **Waitt.**
Lecturer on Iron and Steel: **A. L. Crocker**, M. E.

ADMISSION.

TO THE UNDERGRADUATE COURSES.

Applicants who have completed the scientific course of the collegiate department are entitled to admission to the junior class without further examination. Other applicants, if candidates for graduation, must pass satisfactory examinations in all the studies of that course, Applicants for special studies in this college are admitted to the classes if competent, in the judgment of the professors concerned, to receive the instruction.

OBJECT.

The aim of the instruction given in the regular undergraduate courses of this college is to lay a broad and solid foundation in mathematics, mechanics and drawing, so that with the practice in field, shop and office work given to the students in the respective courses they shall be fitted for immediate usefulness upon graduation, and after a moderate amount of subsequent practice and experience, be capable of taking charge of important works.

COURSES OF STUDIES.

Three regular undergraduate courses have been organized upon the following data:

1. There are fifteen lectures or recitations per week, besides daily exercises in drawing, field work or shop work, and the rhetorical and other exercises.

2. As a general rule there are ten hours a week of prescribed recitation work, and five of elective.

3. The electives are chosen from corresponding years and terms of this and other colleges.

The third study is, as a rule, elective. The one named is generally recommended to be taken, but the student is free to pursue any of the authorized "electives."

The rhetorical exercises of this college consist of papers or reports each term, on professional subjects approved by the professor in charge of the course in which the student is enrolled. The labor of preparing these papers or reports is not designed to exceed that required by the rhetoricals in the college of science, literature and the arts. As a condition of graduation, each student is required to present a satisfactory thesis, with the necessary drawings, which are accepted in lieu of other rhetoricals in the last term of the senior year. These theses are to be deposited in the university library.

JUNIOR YEAR.

TERM	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	1. Elements of mechanism. 2. Analytical geometry. 3. History of civilization (3), compar. philology (2), *or other elective.* 4. Drawing or shop work.	1. Curves, leveling and earthwork. 2. Analytical geometry. 3. History of civilization, (3) compar. philology (2) *or other elective.* 4. Field-work and drawing.
II.	1. Mechanics (statics). 2. Differential calculus 3. Mineralogy. 4. Drawing (des. geom.) or shop work.	1. Mechanics (statics). 2. Differential calculus. 3. Mineralogy. 4. Drawing (descriptive geometry).
III.	1. Mechanics (dynamics) and strength of materials. 2. Integral calculus and theory of equations. 3. English literature, *or other elective.* 4. Drawing. or shop work.	1. Mechanics (statics) and strength of materials. 2. Integral calculus and theory of equations. 3. English literature *or other elective.* 4. Topography and drawing.

SENIOR YEAR.

TERM.	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	1. Machinery.	1. Arches, retaining walls and hydraulics.
	2. Applied descriptive geometry.	2. Stereotomy.
	3. Geology or astronomy.	3. Geology or astronomy.
	4. Drawing or shop work.	4. Railroad work and drawing.
II.	1. Steam engine, *and other motors.*	1. Roofs, trusses and lectures on motive power.
	2. Practical physics (testing strength of materials.)	2. Practical physics, (testing strength of materials.)
	3. Civil government, *or other elective.*	3. Civil government, *or other elective.*
	4. Drawing or shop work.	4. Drawing.
III.	1. Designs and specifications.	1. Designs and specifications.
	2. Practical astronomy.	2. Practical astronomy.
	3. Political economy *or other elective.*	3. Political economy *or other elective.*
	4. Drawing on designs.	4. Drawing on designs,

III. ARCHITECTURE.

This course coincides with that in civil engineering, except as follows:

1. The drawing throughout the course is especially arranged for architectural work.

2. In the first term of the junior year, history and orders of architecture are substituted for curves, leveling and earth work.

3. In the second term senior year, lectures on decoration and color are substituted for lectures on motive power.

4. In the third term senior year, the designs and specifications are those of buildings, instead of bridges, etc.

A short course of lectures upon the manufacture of iron and steel has been given the students of this college by Mr. A. L. Crocker, M. E., of Minneapolis, and it is hoped to continue this and other courses by men in active scientific pursuits, in the future.

GRADUATION.

Students completing the foregoing regular courses to the satisfaction of the faculty, are entitled respectively to receive the appropriate baccalaureate degrees, to wit: bachelor of civil engineering, bachelor of mechanical engineering, bachelor of architecture.

Students completing either of the courses in the Artisans' Training School may receive certificates of proficiency from the Faculty.

The degrees of CIVIL ENGINEER, MECHANICAL ENGINEER and ARCHITECT, will be conferred upon bachelors of civil engineering, mechanical engineering and architecture, respectively, of this, or any reputable college or university, who shall, upon examination, to be held not sooner than two years after attaining a first degree, show special proficiency in some branches of professional study, and shall present a satisfactory thesis.

The following rules are now in force:

Candidates are required to present their applications on the proper blank, stating the particular degree desired, the subjects selected by them on which to be examined and the titles of their theses. After the approval of the application by the faculty of the college no changes nor departures can be permitted. Graduates of other colleges or universities will exhibit their diplomas on filing their applications.

REQUISITES FOR THE SECOND DEGREE.

FOR CIVIL ENGINEER.

1. A satisfactory examination,

(*a*) upon some subject in civil engineering,

(*b*) upon any three distinct subjects selected from the following branches:

1. Mathematics, pure or applied.
2. Science, natural or physical.
3. Philosophy.
4. Political science.
5. History.
6. A language, ancient or modern.
7. Philology.

2. A design in civil engineering.

3. A thesis on a subject in civil engineering.

FOR MECHANICAL ENGINEER.

1. A satisfactory examination,

(*a*) upon some subject in mechanical engineering,

(*b*) upon any three distinct subjects selected from the following branches:

1. Mathematics, pure or applied.
2. Science, natural or physical.
3. Philosophy.
4. Political science.
5. History.
6. A language, ancient or modern.
7. Philology.

2. A design in mechanical engineering.

3. A thesis on a subject in mechanical engineering.

FOR ARCHITECT.

1. A satisfactory examination,

(*a*) upon a subject in architecture.

(*b*) upon any three distinct subjects selected from the following branches:

1. Mathematics, pure or applied.
2. Science, natural or physical.
3. Philosophy.
4. Political science.
5 History.
6. A language, ancient or modern.

2. A design in architecture.

3. A thesis on a subject in architecture.

Special students receive certificates for successful examinations in the branches pursued. Any person is entitled to undergo examination in any subject, at convenient times; and if such person pass in all the studies and exercises of any course, he is entitled to the appropriate degree.

EXAMINATIONS.

The proficiency of students in this college is ascertained by examinations conducted in writing at the close of each term. These are estimated on a scale of one hundred. The marks for the rhetorical and other exercises are reduced to the same scale at the close of each term. A minimum of 75 per cent. in each study and exercise is necessary to "pass."

METHODS OF INSTRUCTION.

Instruction in the several subjects pertaining to civil and mechanical engineering and architecture is given by text-books, lectures, reading in the general library and practical exercises, the theories taught in the class-room being applied in the solution of practical problems and the construction of original drawings. Accurate tests of the strength of all the most common materials of construction are made by the students by the use of the testing machine. Among the important tests are those on the deflection and ultimate strength of full sized beams. Careful records are kept by the students, of each test, and the moduli of elasticity and rupture are calculated from the data thus obtained. The students are also required to visit the various machine shops, bridges and important structures in the vicinity and make reports upon them. accompanied by sketches and necessary measurements. The students in mechanical engineering receive a thorough drill in the use of tools in a series of instruction shops, thus fitting them for superintending the construction of the designs which their training in class and drawing-rooms will prepare them for. Instruction is also given in the actual use of the steam engine indicator, and by its use in connection with other observations, these students make an accurate test of the power of the university engine. Field practice is a portion of the regular course in civil engineering. The classes in surveying are drilled in the measurement of land already divided up, in the laying out of fields of given shape and area, in the sub-division of land as practiced by the government surveyors, and in the solution of various geometrical and trigonometrical problems from data taken by the students themselves. In railroad work the students have practice in laying out curves, taking levels, cross-sectioning, staking out—in fact, they do all the work of locating a railroad line, from the preliminary survey up to the point of actual construction. In topography the classes make a complete survey of a piece of land with diversified surface, and make a finished drawing, showing the contour lines and all other details. In the drawing room the students in the various courses receive thorough drill in making both working and finished drawings from plates, from machines and structures already built and from original designs of their own.

APPARATUS.

This college possesses the following apparatus :

For mechanical engineering—A Haskin's vertical steam engine and boiler; a Sturtevant pressure blower and a Sturtevant exhaust fan; eight stationary forges with anvils, and the necessary tools for a thorough drill in forge work; a portable forge with anvil and tongs; benches fitted with ten vises and the tools for systematic instruction in filing and chipping; benches, vises and eight complete sets of tools for wood working; two circular saws, a bandsaw, a foot lathe, with tools for working in wood and metal; a Thompson's steam engine indicator, with full list of accessories; a number of models of machinery, including a set of belting models and one of screw threads; a collection of drawings or plates of machine construction; a pair of very accurate and highly finished test gauges, registering pressures up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure gauges, and a pump for testing boilers.

For civil engineering—a compass, two transit instruments, two levels with rods, two chains, three tapes, pins, transit rods, a self reading rod, a hand level, several models of bridges and roofs, a few drawings and tools for modelling in the course in stereotomy.

For general use--a 50,000 pounds testing machine, manufactured by Tinius Olsen, of Philadelphia, which can be adapted for compressive, tensile, tranverse and shearing tests. Other pieces of apparatus have been designed by the department to be used in connection with the testing machine in making tests of full sized beams. The machine as adapted for testing of large beams is shown in Plate 1. Apparatus for taking blue prints, with adjustments for turning the paper so as to be always perpendicular to the direction of the sun's rays, made from designs by the department and which is used by the engineering students in copying drawings; a full set of Schrœder's models for descriptive geometry, and a set of large plates for wall use, from which drawings are made.

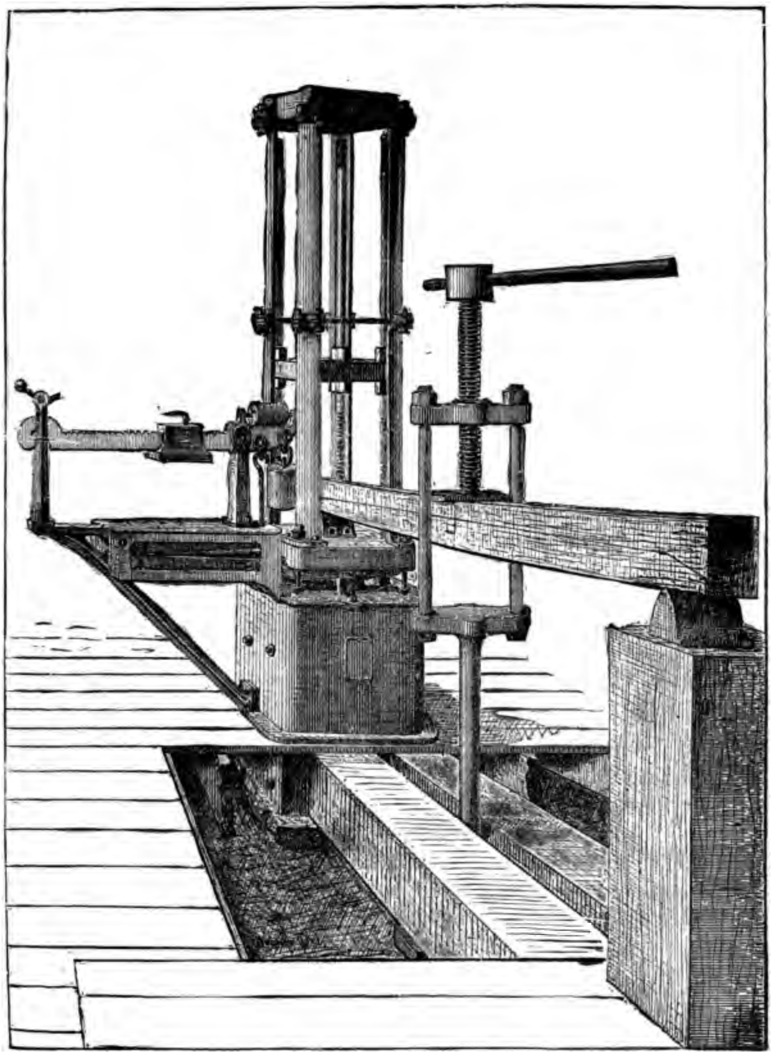


PLATE 1.—Olsen Testing Machine.

The U. S. Coast Survey has furnished the university with a set of standard weights and measures which have been put under the charge of this college. The complete set embraces: 1. A yard scale divided to inches and tenths with a matrix for comparison of end yards. 2. Weights from one grain to twenty-five pounds. 3. Liquid capacity measures, a pint, a quart, and a gallon. 4. Dry capacity measures, a quart, a half peck, a peck and a half bushel.

Adjustments of these Standards.—The yard is a line measure and an end measure. The jaws of the matrix forming the latter are given a slight slope. The yard scale is standard at 55.3° Fahrenheit. The bottom of matrix is standard at 71.7° Fahr. The expansion of the brass scale may be assumed as 0.00036 inch per 1° Fahr.

The weights are so closely adjusted to the standards that final comparison could detect no sensible corrections. The liquid measures are adjusted to the temperature of 60° F. At this temperature.

The gallon equals a standard gallon less 0.01 cu. inch.

The quart equals a standard quart less 0.005 cu. inch.

The pint equals a standard pint plus 0.007 cu. inch.

The dry measures are adjusted to the temperature of the maximum density of water or 39.01° At this temperature:—

The half bushel equals the standard less 0.01 cu. inch.

The peck equals the standard less 0.003 cu. inch.

The half peck equals the standard less 0.009 cu. inch.

The quart equals the standard less 0.009 cu. inch.

REGULATIONS.

Students of this college are expected to attend the morning assembly.

Absentees from lectures, recitations and other duties, report their excuses to the professors concerned. Five unexcused absences give occasion to a warning, and three additional ones to suspension.

No student may have more or less than the prescribed amount of work per week, without leave of the faculty.

No student of this college can become a candidate for a degree in another college, without leave of the faculty first obtained.

THE ARTISANS' TRAINING SCHOOL.

This school has been established as a department of the College of Mechanic Arts to meet the needs of mechanics and others, and takes the place of the courses in shop work and drawing heretofore given.

The students of this school are separated into four divisions viz:

A. Those who wish to devote themselves wholly to shop work and industrial drawing as a preparation for entering upon active life.

B. Those desiring to receive instruction in mathematics, as well as in shop work and drawing.

C. Those whom circumstances prevent from taking either of these courses, and who wish day instruction in drawing.

D. The evening drawing class for working artisans.

A. DIVISION.

I. Term	*II. Term.*	*III. Term*
Vise work.	Forge work.	Wood work.
Drawing.	Drawing.	Drawing.

B. DIVISION.

I. Term.	*II. Term.*	*III. Term.*
Vise work.	Forge work.	Wood work.
Drawing.	Drawing.	Drawing.
Algebra.	Trigonometry.	Solid geometry or surveying.

C. DIVISION.

Industrial Drawing, beginning at any time but to be pursued consecutively.

D. DIVISION.

Twenty-five evening lessons in mechanical drawing, beginning October 16th, at 7:30 p. m.

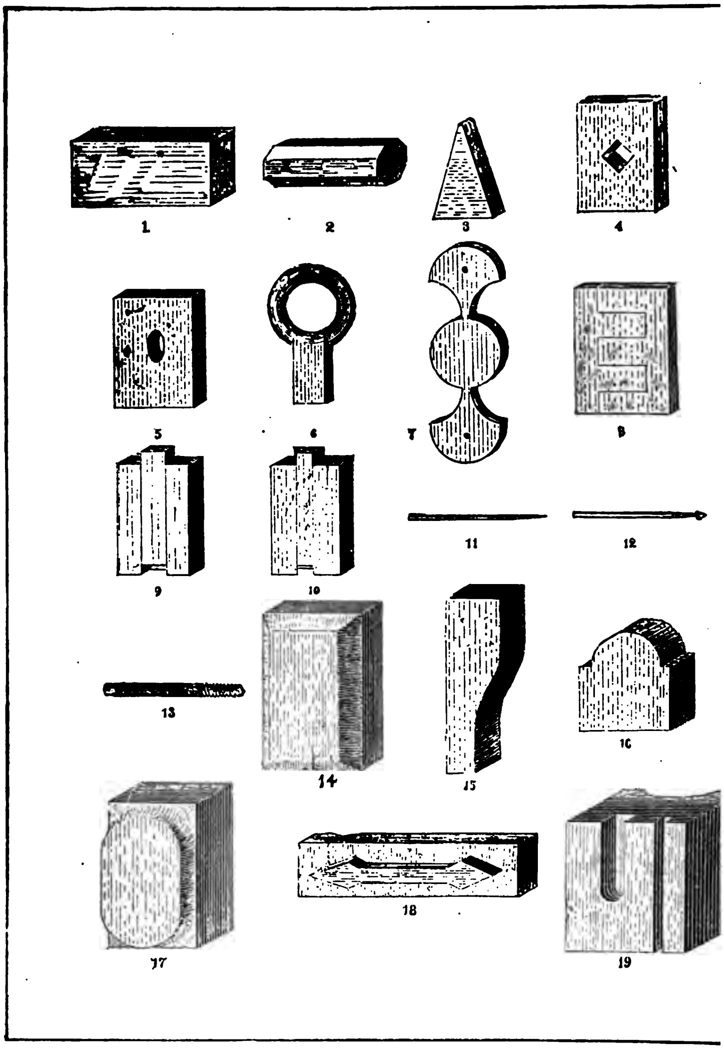


PLATE 2.—Course in Vise Work.

ADMISSION.

Applicants for membership in any of the divisions must be at least fifteen years of age and must pass examinations as follows: A Division—In reading, writing, and arithmetic; B Division—In reading, writing, arithmetic, plane geometry and elementary algebra. Members of this division who pass examination in geography and U. S. history may be allowed to select studies from the collegiate department under direction of the faculty; C and D Divisions—no examinations required.

METHODS OF INSTRUCTION.

In the courses of the Artisans' Training School, the instruction in shop work is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the student in the use of tools, leaving out the idea of construction except in so far as it may not interfere with instruction. The function of this school being to teach the use of tools in general rather, than any particular trade, much time can be saved by devoting the entire attention of both student and instructor to the manipulation of the tools and avoiding the repetition of the same operation which necessarily occurs when construction is an object rather than an incidental. The preparation of the exercises, in any particular branch of work, consists in first carefully analyzing the various operations and reducing them to their simplest forms and then classifying them in such a way as to have them succeed each other in the order of their difficulty. Thus, if we examine into the work usually done at the vise we see that the greater part of the work done there is made up of various combinations of the following operations: — Filing to straight or curved lines, either between two lines or to one line alone, filing to template, fitting, free hand filing with and without the hand vise, sawing and chipping plane and curved surfaces. Starting then with these operations to be taught, a course is designed which shall take them up one at a time and apply them to wrought iron, cast iron and steel. The course as thus planned is shown in plate 2. Plate 3 represents the course in forge work which covers the following operations: Bending, upsetting, drawing out, welding, punching, splitting, forming and tempering. These are applied to various grades of iron and

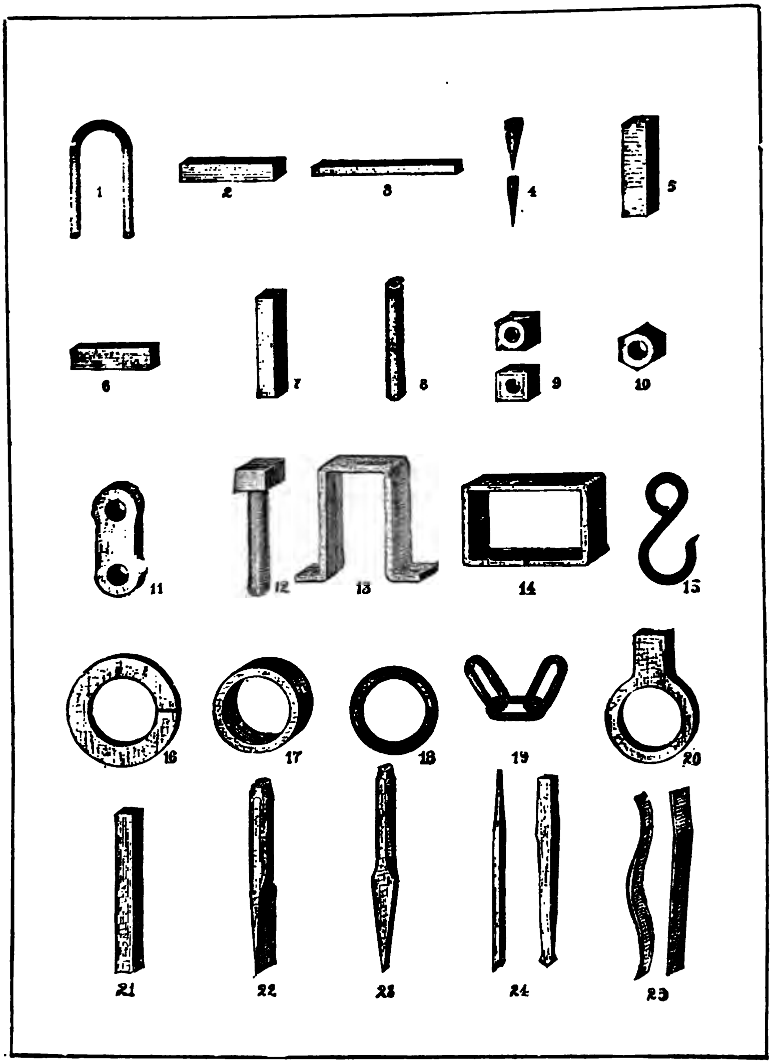


PLATE 3.—Course in Forge Work.

steel. In the course in wood work shown in plate 4, the work covers the following: Striking, driving nails, marking, sawing, planing, an application of the preceding to making a carpenter's horse, chiselling, rabbetting, sand papering, application of all preceding lessons in a set of drawers which also includes an exercise in blind nailing, timber joints, straight and oblique mortise and tenon, application of all the preceding in making an oak drawing desk, including three methods of dove-tailing. The drawing in this school is conducted on the same plan as in the engineering courses, the students first using the text book prepared for the department and afterwards varying their work to meet their individual requirements.

In mathematics the instruction covers algebra, solid geometry and trigonometry, taught with special reference to the needs of this class of students, and giving many applications to practical matters.

REGULATIONS.

All members of this school are required to deposit $5.00 with the treasurer of the university or his agent, which will be returned to members of divisions A, B and C when connection with the school ceases, less such charges as may be made for damage to tools or other property, and to members of division D when their connection ceases, if they have been regular in attendance, less such charges for damages as may be made. Divisions A, B and C will come under general regulations as to attendance, etc.

Students of the B Division should, if possible, enter at the beginning of the year; of the A Division at the beginning of terms; of the C Division preferably at the beginning of terms, and of D Division as stated on page 87.

Tuition is free in all the courses. The annual fee of $5.00 is required of all students of this college except members of the Artisans training school. Of these a deposit of $5.00 will be required on admission, to insure regular attendance, the return of tools, etc. This deposit will be returned at the end of the course if the requirements are fulfilled.

For further information as to this college apply in person or by letter to the Secretary of the faculty, PROF. WM. A. PIKE.

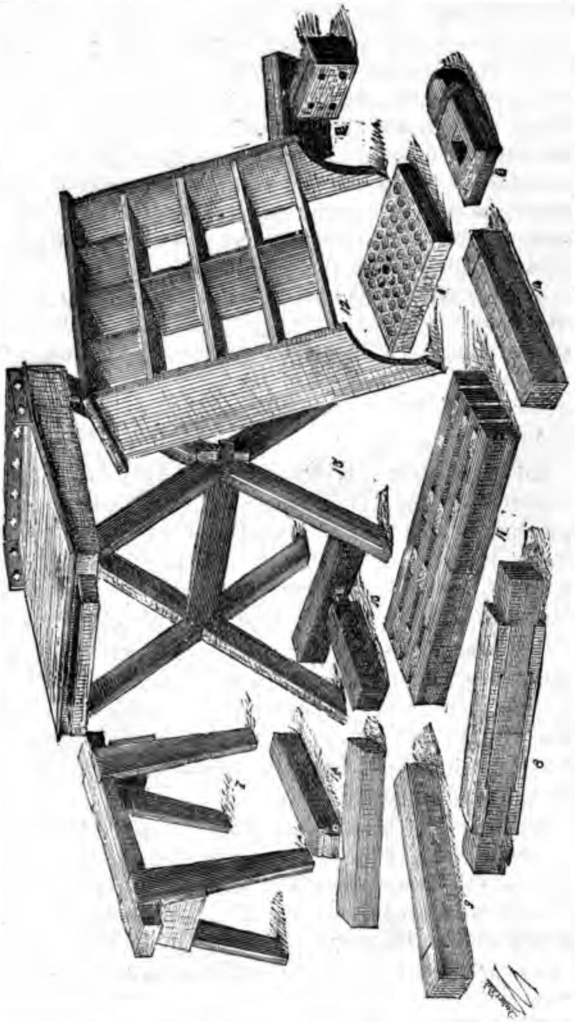
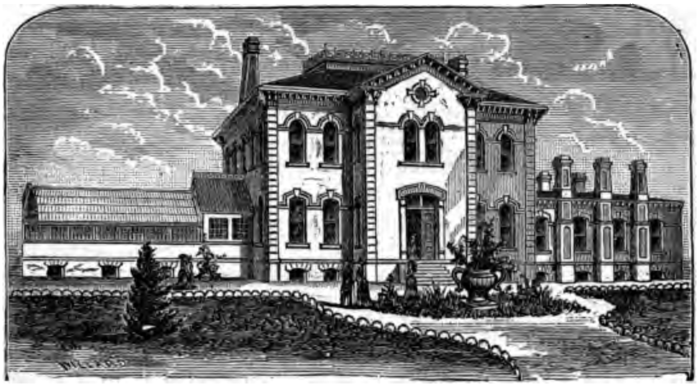


PLATE 4.—Course in Wood Work.

THE COLLEGE OF AGRICULTURE.



THE BUILDING.

THE FACULTY.

Professors DODGE, HALL,

PORTER, Secretary. THE PRESIDENT.

LECTURER FOR SESSION OF 1883-1884,

MISS JULIET CORSON, Domestic Economy.

FACILITIES.

Students in the college of agriculture receive the benefit of the library and apparatus of the University, as well as of those belonging to the college. The whole may be enumerated as follows.

(1.) The general library of the University, containing nearly 15,000 volumes, and receiving frequent additions. More than one hundred volumes are especially devoted, in a practical manner, to the subjects of agriculture, horticulture, tree culture and stock raising. Besides these are several hundred volumes on botany, zoology, anatomy, physiology and other sciences related to agriculture.

(2.) The general museum of the university, containing a large collection of minerals, casts of extinct animals, stuffed mammals and birds.

(3.) The museum of technology, containing materials and products used in illustrating manufacturing processes.

(4.) The museum of agriculture, containing at present a collection of models of machines and implements, a collection of the seeds of garden vegetables, grain and grass seeds in glass jars; a collection of grains and grasses in the straw; a collection of fruits in alcohol; a large collection of woods from the U. S. Department of Agriculture; a collection of plates and lithographs; miscellaneous objects and materials used in agriculture. Donations always welcome.

(5.) Chemical and physical laboratories, supplying opportunities for the student to practice with his own hands.

(6.) Drawing rooms.

(7.) Engineers' and surveyors' instruments and a testing machine.

(8.) The plant house 24x46 feet, with a recent addition of half these dimensions supplying plants and flowers for the study of botany, and apparatus for instruction in the propagation and care of plants.

(9.) The experimental farm, used for testing the different varieties of vegetables, grains and fruits, is made to illustrate as much as possible the principles taught in the class room.

The farm heretofore occupied for this purpose having been cut into four unequal and ill-shapen pieces by University avenue and the C. M. & St. P. R. R., and being needed to meet the wants of a rapidly growing city, has been abandoned and sold and the proceeds invested in a new farm, located on Como avenue, between Minneapolis and St. Paul, and containing three hundred and forty-two acres of most valuable land, admirably diversified in soil, exposure, prairie and woodland.

The regents are erecting a complete set of buildings, and it is designed to furnish this farm with such an equipment of stock, implements and machinery as will fitly represent the agricultural resources of Minnesota, and render this department of the university one of the finest experimental stations of the country.

SCOPE OF INSTRUCTION.

IN AGRICULTURAL CHEMISTRY--A study of the elements of the volatile parts of plants, as carbon and oxygen; a study of the organic compounds of plants, as water, starch and sugar; a study of the elements of the ash of plants and their compounds, as potassium, calcium, iron, sulphates and phosphates; a study of the atmosphere and the soil as related to vegetation, and as sources of food to plants; a course in the analysis of soils, fertilizers, grain and fodders.

IN ECONOMIC ENTOMOLOGY--General characters of insects; characters and peculiarities of those families containing useful or injurious members: together with a special study of the more important individuals of these families.

IN HORTICULTURE--Relations of heat, light, moisture and food to plant growth, and the means of controlling their supply and intensity; plant houses, hot beds, etc.; soils and manures, and their manipulation; propagation of plants; grafting, budding, pruning, training, etc.; planting and transplanting; hybridizing, crossing and selecting; cultivation of the apple, pear, plum and other large fruits; cultivation of the currant, strawberry, raspberry, cranberry and other small fruits; kitchen gardening, market gardening, landscape gardening and floriculture.

IN ARBORICULTURE- Reasons for planting forest trees; what trees to plant; method of propagating; care in the nursery; special culture of each species.

IN PRACTICAL AGRICULTURE--History of agriculture; brief review of chemical composition and physical properties of air and water as related to the soil and vegetation; the chemical constituents and practical classifications of soils; properties, peculiarities, treatment and adaptations of each kind; reclamation and improvement of soils, including drainage, subsoiling, trenching, altering, following, paring and burning, preparatory tillage, road making and fencing; manufacture, preservation and application of manures and stimulants; green manuring and irrigation; farm implements and machinery; production, management and sale of the different crops; the different breeds of farm animals, their characteristics and adaptations; breeding, rearing, feeding and management for different purposes to which is suited; selection and purchase of farms; the situation, relative position, size and internal management of farm buildings, and their adaptation to puposes for which they are intended.

IN COMPARATIVE ANATOMY AND PHYSIOLOGY--Anatomy, physiology and hygiene of the domestic animals.

IN VETERINARY MEDICINE AND SURGERY--Prevention and treatment of diseases and injuries of the domestic animals.

ECONOMICS—Farm accounts, grain raising, stock raising, dairying, general farming, fruit culture, market gardening and other specialties; relations and sequence of farm operations; legislation relating to agriculture; relations of agriculture to commerce, manufactures, labor, government, taxation, etc.

THE REGULAR UNDERGRADUATE COURSE.

	JUNIOR YEAR.
1st TERM—	1. Composition and physiology of plants—" how crops grow " 2. Horticulture. 3. Mechanical physics, *or other elective.*
2d TERM—	1. Agricultural chemistry. 2. Mineralogy and chemistry. 3 Mineralogy, *or other elective.*
3d TERM—	1. Atmosphere and soils—"how crops feed." 2. Horticulture. 3. Psychology, *or other elective.*
	SENIOR YEAR.
1st TERM –	1. Practical agriculture—"soils and fertilizers." 2. Comparative anatomy and physiology. 3. Geology, *or other elective.*
2d TERM—	1. Practical agriculture—"farm crops." 2. Veterinary medicine and surgery. 3. Civil government, *or other elective.*
3d TERM—	1. Practical agriculture—"farm animals." 2. Economics—"accounts, markets, etc." 3. Political economy, *or other elective.*

The third study named in the above table is the one recommended to be generally taken, but students are free to pursue any one of the other authorized electives.

The rhetorical exercises in the college of agriculture are the same as in corresponding years and terms of the scientific courses.

Students completing the above course to the satisfaction of the faculty, are entitled to receive the degree of bachelor of agriculture.

OBJECT.

The studies and exercises of this course are designed to give to students already well instructed in liberal studies, and in general science special training in the sciences related to agriculture, including their practical application.

ADMISSION

This course properly follows the scientific course of the collegiate department, but it may also follow either of the other courses of that department or the elementary course in agriculture. Applicants who have completed any of these courses are therefore entitled to admission to this college. Other applicants, if candidates for graduation, must be examined in the same or equivalent studies. The following is the

I. SCIENTIFIC COURSE, COLLEGIATE DEPARTMENT.

Class.	FIRST TERM.	SECOND TERM.	THIRD TERM.
III.	1. Elementary chemistry.	1. Drawing (10 hours).	1. Elementary botany.
	1. History—*ancient*.	2. Algebra.	2. Geometry (*completed*).
	3. English—*Am. authors*. or German (*begun*), or Cicero—*Orations*.	3. English—*Addison, etc.*, or German (*continued*), or Virgil—*Æneid*.	3. English—*Scott, etc.*, or Virgil—*Æneid*, or German—*selections*.
II.	1. Draughting (10 hours).	1. Physics.	1. General chemistry.
	2. Higher algebra.	2. Trigonometry. (3) History—*mediæval*. (2)	2. Botany (*continued*).
	3. English—*Abbott*, or German—*Lessing*, or Latin—*Livy*.	3. English—*Milton*, or German—*Schiller*, or Latin—*Livy*.	4. English—*Shakspeare*, or German—*Gœthe*. 3. Surveying. (4 hours).
I.	1. Applied chemistry.	1. Descriptive geometry.	1. Zoology—*elements*. 2. Conic sections. (3) History—*modern*. (2)
	2. Physics (*continued*).	2. Rhetoric.	3. English—*Early Eng*, or French—*selections*, or Latin—*Tacitus*.
	3 English—*hist, E. lang*. French (*begun*), or Latin—*Horace*.	3. English—*Anglo-Saxon*, or French (*continued*). Analytical chemistry. (6 hours).	3. Analytical chemistry. (4 hours).

II. THE ELEMENTARY COURSE

This course agrees in the main with the scientific course of the collegiate department, but differs from it in the substitution of some natural sciences and practical instruction for languages and mathematics in the latter part. The requisites for admission are the same as for admission to the collegiate department.

ELEMENTARY COURSE.

Class.	FIRST TERM.	SECOND TERM.	THIRD TERM.
III.	1. Elementary chemistry.	1 Mechanical drawing.	1. Elementary botany.
	2. How crops grow.	2. Algebra.	2. How crops feed.
	3. English, or German.	3. English, or German.	3. English, or German.
II.	1. Soils and manures.	1 Farm crops.	1. General chemistry.
	2. Drawing (10 hours).	2. Physics.	2. Botany.
	3. English, or German.	3. English, or German.	3. English, or German.
I.	1. Applied chemistry.	1. Horticulture.	1 Practical agriculture. *Farm animals.*
	2. Horticulture.	2. Meteorology, and climatology.	2. Zoology.
	3. English, or French.	3. English, or French.	3 English, or French
		4. Analytical chemistry.	4. Analytical chemistry.

So far as practicable the students in the elementary course recite with the classes of the collegiate department. The same rhetorical, military and other exercises are required as in that department. Ancient languages are optional.

While the above schemes indicate when regular and systematic instruction in the different studies will be given, instruction in PRACTICAL agriculture and horticulture will be given at various times throughout the whole course. The farm and gardens will be made to afford every possible facility for observation and practice, and enough of the latter will be required of all regular students in this department to give them skill in the different operations of the farm and garden.

III. SPECIAL COURSES.

While the above courses of study are provided for those who desire a systematic education in scientific agriculture, the board of regents provide in their by-laws for the ADMISSION OF ANY PERSONS TO ANY CLASS in this College, upon the sole condition that they appear to be competent to receive the instruction.

Under the authority of this by-law the following courses for the year 1884–85 have been arranged. They are not designed in any way to limit the advantages offered by the by-law. Any person who can read and write the English language can enter either course without examination.

SPECIAL COURSE IN AGRICULTURE.

I.

Beginning First Term, September, 1884.

FIRST TERM.	SECOND TERM.	THIRD TERM.
1. Agricultural chemistry—*how crops are raised.* 2. Agriculture—*soils and manures.* 3. Horticulture—*fruits.*	1. Agricultural chemistry—*how crops grow.* 2. Agriculture—*farm animals.* 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture—*farm crops.* 3. Horticulture — *vegetables.*

II.

Beginning Second Term, December, 1884.

SECOND TERM.	THIRD TERM.
1. Agricultural chemistry—*how crops grow.* 2 Agriculture—*farm animals.* 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture—*farm crops.* 3. Horticulture—*vegetables.*

III.

Beginning Third Term, March, 1885.

1. Farm drainage and farm accounts.	2. Agriculture —*farm crops.*	3. Horticulture—*vegetables.*

IV. THE FARMERS' LECTURE COURSE.

This course is specially designed to meet the wants of farmers and others who desire scientific and practical information relating to their calling, and whose business prevents them from spending an entire year away from home.

The instruction given is both scientific and practical. The former includes agricultural chemistry, botany, physiology, entomology, geology and mechanics, and is given by those professors who have these departments in charge in the University. The latter includes the improvement of soils by drainage, subsoiling, trenching, plowing, rotations, manures, etc., grain raising, dairying, fruit culture, forest culture, farm accounts and rural architecture, and is given by the professor of agriculture and by men who have become successful and noted in these special departments.

No fees, examinations, or other conditions are imposed for admission to this course, but its advantages are ABSOLUTELY FREE TO ALL.

The arrangements for the course in the winter of 1884 will be announced by a timely circular.

The FARMERS' COURSE for the winter session of 1885, was eminently successful, and was attended by eleven hundred and eighteen persons, who registered their names and post-office addresses.

THE COLLEGE OF MEDICINE:

THE FACULTY.

Professors Hewitt, Smith, Staples,
Wood, Hand, Simpson,
Leonard, Dodge, Millard.
The President.

OBJECT.

It is the duty of the faculty of this college to test and ascertain by examination, experiments and other appropriate means the qualifications, proficiency and skill of all candidates for degrees in medicine and surgery and to recommend them to the Board of Regents for graduation accordingly.

No instruction is offered in this college. The faculty is an examining body solely.

TERMS.

In the college of medicine there are two terms in each year; the September term beginning with the opening of the university year, the April term beginning on the third Monday in April.

The entrance and scientific examinations take place in the September term; the professional examinations in the April term.

ENROLLMENT.

Enrollment regularly takes place at the September term upon completion of the entrance examination, but candidates entitled to be excused from this and the scientific examination may be enrolled at the opening of the April term.

No person not enrolled is admitted to the professional examinations. All enrolled students are expected to report in person or in writing, at the beginning of every April term, until graduation. Candidates not so reporting may be dropped from the rolls.

EXAMINATIONS.

These are

(1) THE ENTRANCE EXAMINATION,
(2) THE SCIENTIFIC EXAMINATION,
(3) THE PROFESSIONAL EXAMINATIONS.

I. THE ENTRANCE EXAMINATION.

The entrance examination takes place at the September term in connection with the general examinations conducted under direction of the general faculty for admission to the university.

The entrance examination embraces the following subjects:

(1) The English language including writing, spelling, grammar, analysis and composition.

(2) Arithmetic, elementary algebra and plane geometry.

(3) Geography, United States history and the outlines of general history.

(4) Latin grammar and Cæsar's Commentaries (or any one Latin author), or an equivalent knowledge of German, French or one of the Scandinavian languages.

The examination certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects, and the holder is accordingly excused from further examination therein.

After passing the entrance examination the candidate is entitled to apply for enrollment in the college of medicine.

II. THE SCIENTIFIC EXAMINATION.

The scientific examination follows immediately after enrollment in the September term and embraces the following subjects:

(1) Physical geography.
(2) Natural philosophy.
(3) Elementary botany.
(4) Chemistry.
(5) Drawing, free-hand or mechanical.

This examination is conducted by a committee of the general faculty, one of whom must be a professor of this college.

The certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects except chemistry, in which greater proficiency is required.

Applicants who bring a final certificate for the scientific course of the collegiate department (end of sophomore year,) are excused from the scientific examination as well as the entrance examination.

Applicants who bring a final certificate for the classical or modern courses of the collegiate department are excused from the entrance examination and the scientific examination except in chemistry.

Baccalaureates of the colleges of science, literature and the arts, of mechanic arts and of agriculture of this university, and graduates of any reputable college or university are excused from the entrance and scientific examinations and receive a credit of one year on professional study.

The entrance and scientific examinations are conducted in writing, according to the rules and methods in use in the collegiate department of the university.

III. THE PROFESSIONAL EXAMINATION.

FIRST ;--*Examinations for Bachelor of Medicine.*

These take place only in the April term of each year. They are divided among the following nine departments:

(1) Anatomy and physiology.
(2) Pathology.
(3) Materia Medica and therapeutics.
(4) Medical chemistry.
(5) Preventive medicine, personal and public hygiene.
(6) Practice of medicine.
(7) Surgery.
(8) Obstetrics and diseases of women and children.
(9) Diseases of the nervous system, and medical jurisprudence.

The examinations have for their object to test:

1st. The candidate's familiarity with the literature of the subject;

2d. His clinical and laboratory experience; for this purpose, properly authenticated specimens of his work in any department will be examined, and he may submit certificates and the other evidence thereof:

3d. His skill in the actual use of physical, chemical and other tests in diagnosis and the use of remedies and instruments.

It is understood in all cases, that the candidate is prepared for examination on the text book advised for each department; for which see list of text and reference books in this announcement.

The following statements summarize the requirements in each of the nine general departments into which the whole science and art of medicine are divided.

I. ANATOMY AND PHYSIOLOGY.

1. *Anatomy.* Evidence of having dissected or performed autopsies.

Properly authenticated preparations, wet, dry, or microscopic, may be submitted.

Demonstration of such anatomical material as may be submitted for the purpose.

Histology and regional anatomy.

2. *Physiology.* Demonstration of normal tissues and products, and the relations of the living body to its environment.

II. PATHOLOGY AND PATHOLOGICAL ANATOMY.

The demonstration of specimens submitted for examination, and the examination of cases for the diagnosis of morbid conditions.

The use of chemical agents and the microscope to this end.

III. MATERIA MEDICA AND THERAPEUTICS.

1. *Materia Medica.* The demonstration of drugs and their preparations from examples submitted.

Practical pharmacy in the preparation and dispensing of medicines.

Prescription making, writing and filling.

2. *Therapeutics.* Indications for the use of remedies, drugs or other; their physiological action.

IV. MEDICAL CHEMISTRY.

Demonstration by the use of chemical agents of normal and diseased products.

The chemistry of drugs, foods and poisons.

V. PREVENTIVE MEDICINE.

The physical and chemical relations of rocks and soils to water supply, drainage and the disposal of refuse matters.

1. Meteorology; the relations of atmospheric conditions to health, and the use of apparatus.
2. Sanitary Mechanics; water and air supply and their mechanical purification; ventilation, lighting and heating of inhabited buildings.

Chemistry and microscopy, as aids to the determining the character and purity of air, water and food supply.

Preventible diseases, infectious diseases, etiology, disinfectants.

Hygiene, or the art of prolonging life in health; dangerous or offensive matter.

Public health legislation as respects duties of citzens and physicians.

Vital statistics.

VI. PRACTICE OF MEDICINE.

The diagnosis, prognosis and prescription for cases of disease submitted.

The use of methods and instruments for diagnosis; the clinical examination and record of cases.

Properly authenticated work of this kind by the candidate may be submitted.

VII. SURGERY, INCLUDING SURGICAL PATHOLOGY.

Diagnosis, prognosis and prescription for cases submitted.

The use of instruments and apparatus.

Methods of arriving at knowledge of pathological condition, as also for alleviation or cure.

VIII. OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

The physiology of pregnancy and child birth as natural processes.

Diagnosis and treatment of abnormal conditions in mother or child. Labor, natural and abnormal; diagnosis and treatment. Postpartum conditions and dangers; surgery of women, and diseases incidental to the sex.

The use of instruments and apparatus.

IX. DISEASES OF THE NERVOUS SYSTEM, AND MEDICAL JURISPRUDENCE.

1. *Diseases of the Nervous system.* Examination and report upon cases. Use of instruments and apparatus.

2. *Medical Jurisprudence.* Examinations of and reports on cases.

The law respecting insanity, the construction and management of hospitals for the care of the insane; with means to that end.

In addition to the examination above an opportunity will be given for special examinations in diagnosis and treatment of diseases of the eye, ear, skin, nervous system, and in forensic medicine, as departments of general practice.

A special examination is provided for such graduates in medicine as wish to prepare themselves for the functions of health officers in the state. It will include the use of a text book and collateral reading, and will demand on the part of the candidate a familiarity with the subjects of the examination for preventive medicine, as above noted, and greater actual experience in the control of preventible disease, the processes of water, air, and food analysis, and the principles and construction of systems of water supply, sewage disposal, and the administration of sanitary law.

TEXT BOOKS.

The books named are, as a rule, those already selected by the best American colleges of medicine. They are given as an aid to students. The faculty advise the use of *one* book as a text book and if it can be interleaved it should contain notes or reference to other books, pamphlets articles which have been read on the same subject. The examinations in text-books will be in those noted as such in the following list. Additional information will add to the student's standing:

Text book.	*Collateral reading.*
ANATOMY.	
Gray.	Holden's Manual. Holden's Landmarks. Frey's Histology. Wilson.
PHYSIOLOGY.	
Dalton.	Carpenter, Quain, Flint.
PATHOLOGY.	
Green's Pathology and Morbid Anatomy.	Cornil and Ranvier's Pathological Histology. Virchow's Post Mortems.
MATERIA MEDICA.	
Biddle's Materia Medica.	Maisch: Manual of Organic Materia. Medica. National Dispensator
THERAPEUTICS.	
Ringer's Therapeutics.	Stille's Therapeutics and Material Medica. Chamber's Manual of Diet.
MEDICAL CHEMISTRY.	
Reese's Manual of Toxicology.	Taylor on Poisons. Green's Manual. Flint or Tyson on Urine.
PREVENTIVE MEDICINE.	
Wilson's Hand Book.	Richardson's Preventive Medicine. Water Analysis Wanklyn's. Food Adulteration Hassel's. Arnold, Nouveax Elements d'Hygiene Bouchendat, Traite d'Hygiene. Parker's Manual. Fox: Sanitary Examinations of Water, Air and Food.
PRACTICE OF MEDICINE.	
Flint's Practice.	Bartholow's Practice. Roberts' Hand Book. Flint's Clinical Medicine. Niemeyer's Text Book. Aitken's Practice. Reynold's System (by Hartshorn.) Da Costa's Medical Diagnosis.

Text book.	*Collateral reading.*

SURGERY.

Agnew.	Van Buren and Keyes. Holmes. Smith. Bryant. Gouley. Billroth. Erichsen. Gross.

OBSTETRICS.

Lusk's Manual.	Cazeau's Midwifery. Barnes' Playfair. Obstetric Operations.

DISEASES OF WOMEN AND CHILDREN.

Thomas: Diseases of Women. Smith: Diseases of Children.	Emmet. Meigs and Pepper's Diseases of Children. Day's Diseases of Children.

DISEASES OF THE NERVOUS SYSTEM.

Hamilton A. Mc.	Mitchell's Manual. Buckerill and Lake's Hammond.

MEDICAL JURISPRUDENCE.

Taylor's Manual by Reese, last edition.	Taylor's Principles and Practice Medical Jurisprudence. Wormley's Micro-Chemistry of Poisons.

The examinations for the degree of bachelor of medicine are conducted in writing, but may be supplemented, at the discretion of the examiner in any case, by oral interrogations.

As prerequisite to admission to the professional examinations of the first year, each candidate must furnish—

(1) A certificate of attendance upon one full course of lectures upon the subjects of each study of this course in some recognized college of medicine or in a school of medical instruction.

(2) A certificate of dissection of the muscular, nervous and circulatory systems, with the contents of the cavities of the head, throat and abdomen.

STANDING PROGRAM FOR WRITTEN EXAMINATIONS

FOR DEGREE OF BACHELOR OF MEDICINE.

Hour	First Year. Monday.	Second Year. Wednesday.	Third Year. Friday.
9 A. M.	Anatomy and Physiology.	Pathology.	Surgery.
2½ P. M.	Medical Chemistry.	Obstetrics and Diseases of Women and Children.	Practice.
7½ P. M.	Materia Medica and Therapeutics.	Medical Jurisprudence.	Preventive Medicine and Public Health.

Written examinations are in such form as to admit of convenient preservation. The detailed regulations for conducting these examinations are made known at the opening.

Examinees conform to requirements intended to protect them against suspicion or suggestion of having submitted answers not their own production on the spot.

Any person detected in any dishonesty in his examination is at once stricken from the roll of candidates.

The final examinations for the degree of M. B. begin on Tuesday in the second week of the April term at 9 A. M.

These examinations are oral, and a stenographic report of them is made. They include practical and clinical tests and use of instruments and apparatus, intended to assure the examiners of the candidate's qualifications for the practice of his profession.

SECOND ;—*Examinations for the degree of Doctor of Medicine.*

This examination consists in each case essentially of a thesis and its defense, but the faculty will demand in all cases clinical and practical tests and operations, which shall enable the examiners to decide not merely upon the scholastic proficiency of the candidates but upon their actual professional skill.

All theses must be upon subjects approved by the faculty, must be founded on original work and certified as the unaided productions of the candidates. Twenty-five printed copies of each thesis must be furnished to the faculty before reading and defense.

All theses to be defended in the April term must be submitted to the dean of the faculty on or before the second Monday in March. It is advised that the type-writing machine be used for making the copy. The printed copies required to be made after approval of the theses, shall be on the same sized paper as this pamphlet, and the paper shall be white and of the quality as good as that used by the State of Minnesota. The size of page shall be 22x38 ems, pica.

The faculty will make a calendar of theses, and publish the same on the fourth Monday in April term (second Monday of term).

GRADUATION.

Graduation takes place at the annual commencement of the university, near the first of June.

All candidates who pass the entrance, scientific and professional examinations including the appropriate clinical and experimental tests incidental thereto, and give satisfactory evidence of having pursued professional studies as required by the by-laws, being twenty-one years of age or upwards, and of good moral character, are recommended by the faculty of the college to the board of regents to receive the degree of bachelor of medicine (M.B.), which degree duly conferred is the warrant of the University of Minnesota for the practice of medicine and surgery.

All candidates for the first degree must furnish satisfactory evidence that they have severally pursued the study of medicine for four years in the office of and under the personal direction of a physician in active practice, who is a graduate of some college or school of medicine recognized by the board of regents, upon the recommendation of the faculty of this college.

Provided, however that

(1) One course of lectures with other work incidental thereto in a college of medicine recognized as above shall be reckoned as equivalent to eight months of such study:

(2) One term of six months in a school of medical instruction, organized and conducted in conformity with the by-laws shall be equivalent to one year of such study under a preceptor:

(3) Three courses of lectures with work incidental thereto in colleges of medicine recognized as above shall be equivalent to three years of study under a preceptor. One year at least must in all cases have been passed in a preceptor's office:

(4) Graduates of colleges and universities receive a credit of one year on professional study, in consideration of superior literary and scientific attainments.

Any bachelor of medicine of this university who furnishes satisfactory evidence that he has been actively engaged in professional practice for three years after his graduation, and who presents and defends a thesis in the manner prescribed is recommended to receive the degree of doctor of medicine, (M. D.)

Whenever the examinations for the bachelor's degree in any case evince great proficiency in the literature, theory and practice of medicine the faculty of the college permit the candidate to present and defend a thesis; this being done to their satisfaction they recommend the candidate to receive at once the full degree of doctor of medicine, (M. D.)

Doctors of medicine of other colleges of medicine recognized by the board of regents upon the recommendation of the faculty of this college are recommended to receive the degree of doctor of medicine of this university upon successfully defending a thesis in the manner prescribed.

Any graduate so desiring may receive a statement showing the credit marks obtained by him in his several examinations.

STATE MEDICAL EXAMINING BOARD.

The foregoing statements relate to the college of medicine, regarded as a branch of the university federation.

By virtue of an act of the legislature approved March 6, 1883, entitled, "An act to regulate the practice of medicine in the state of Minnesota, an additional and entirely separate function has been imposed upon the faculty of this college. The law referred to, constitutes the faculty of the college of medicine of the University of Minnesota, the STATE MEDICAL EXAMINING BOARD.

For the text of the law and for fuller information regarding its operations, reference is made to the special announcement of the college of medicine of May, 1884.

All communications relating to the transactions of the state medical examining board should be addressed to PROF. P. H. MILLARD, M. D., Secretary, Stillwater, Minn.

STUDENTS.

ALPHABETICAL ROLL---1883-84.

The Classes of the Collegiate Department are indicated as heretofore.

SOPHOMORE, I.; FRESHMAN, II.; SUB-FRESHMAN, III.

Art. Tr. Sch.—Artisans' Training School.

Abbott, Howard Strickland,	Rockford,	Jun. Modern.
Adams, Alice Anna,	Minneapolis,	III. Modern.
Adams, Charles Trescott,	Gardiner, Me.,	III. Modern.
Adams, Elmer Ellsworth,	Morrisville, Vt.,	Sen. Classical.
Adams, John William,	Lake City,	II. Classical.
Alander, John,	East Union,	Special.
Alden, Bertha Florence,	Minneapolis,	Special.
Alden, Jennie Marcia,	"	III. Modern.
Amy, Jennie May,	"	I. Modern.
Anderson, Alexander Pierce,	Red Wing,	III. Scientific.
Anderson, Josiah Moore,	Eden Prairie,	III. Scientific.
Anderson, Margaret Ellen,	"	Special.
Andrews, George Cutler,	Minneapolis,	I. Scientific.
Armstrong, P. A. H.,	"	Art. Tr. Sch. D.
Arnold, Fred Harris,	"	III. Scientific.
Arnold, John Burtram,	Thorpe, Wis.,	III. Scientific.
Arnold, Walter Ashley,	Saint Paul,	Special.
Baier, Ethelbert,	Minneapolis,	Art. Tr. Sch. A.
Baker, George,	Rochester,	Special.
Baker, Lucie Loyd,	Minneapolis,	Special.
Baker, Nathan Morton, Jr.,	St. Peter,	Sen. Scientific.
Baker, Sibyl Belle,	Minneapolis,	III. Modern.
Baldwin, Albert Melancthon,	Tower City, D. T.,	Jun. Modern.
Barker, Nellie Ingalls,	Monticello,	III. Scientific.

tt, Frank Harley,	Glyndon,	I. Scientific.
Anna Marietta,	Crawfordsville, Ind.	Special.
vith, W. O.,	Manchester, Mich.	Art. Tr. Sch. D.
tt, John William,	Montrose,	I. Scientific.
n, Mary Lathrop,	Minneapolis.	Jun. Classical.
rd, Mary Cecile,	"	Special.
, Knut Halversen,	"	Special.
hard, Caroline Maria,	Zumbrota.	III. Modern.
hard, Mary Elizabeth,	"	III. Modern.
ling, Walter Dimock,	Wahpeton, Dak.	Special.
er, George M.,	Minneapolis.	Art. Tr. Sch. C.
d, John,	"	Art. Tr. Sch. D.
dt, Iverin H.,	"	Art. Tr. Sch. C.
y, Anna Helen.	"	Sen. Modern.
ett. David W.,	"	Art. Tr. Sch. C.
ury, Harry Grant,	"	Art. Tr. Sch. D.
ord, Belle Marion,	Empire,	Sen. Modern.
ord, Eva Berenice,	Monticello,	III. Modern.
s, Eugene Melancthon,	Minneapolis.	Special.
ugh, Gustav O.,	Red Wing,	Specisl.
n, Bertha Winnie,	Richfield,	II. Scientific.
n, Herman Milton,	"	III. Scientific.
n, Robert Sewall,	East Corinth, Me.	Special.
s. George,	Minneapolis,	Art. Tr. Sch. A.
ll, George Edwin,	"	II. Mod.
nell, Elbert Ellsworth,	"	Jun. Mech. Eng.
r, Patrick Joseph,	"	Sen. Classical.
, Edmund Luther,	Stillwater,	III. Scientific.
Louise Anne,	Blue Earth City,	Special.
ron, Adam,	Minneapolis,	Art. Tr. Sch. D.
, Bertha Glee,	"	III. Modern.
bell, L. K.,	"	Art. Tr. Sch. D.
er, Frank Halleck,	Anoka,	III. Scientific.
er, Minnie,	Minneapolis,	Special.
y, Jennie Louise,	"	II. Modern
, Prudence,	Eden Prairie,	III. Modern.
larence Stanley,	Riverside, Ia.	Special.
Henry Elmer.	Fairpoint.	III. Scientific.
tryman, Gratia Alta,	Minneapolis,	II. Scientific.
Harriet Maria,	"	Special.
, Leo Melville,	"	I. Modern.

Crane, Fremont,	Good Thunder,	II. Scientific.
Cross, Norton Murdock,	Minneapolis,	II. Scientific.
Croswell, Thomas Henry.	"	II. Scientific.
Cullen, John.	"	Art. Tr. Sch. C.
Dahl, John Albert.	"	Special.
Darcy, Miles.	Chicago, Ill.	Art. Tr. Sch. C.
Dare, C. B.,	Minneapolis.	Art. Tr. Sch. D.
Davidson, Donald B.,	Glencoe, Can.,	III. Scientific.
Davis, John Moore,	Minneapolis,	Special.[1]
Devine, John,	"	Art. Tr. Sch. D.
Dick, John.	"	Art. Tr. Sch. D.
Dinsmoor, Adelbert Orsman.	Austin.	II. Scientific.
Donohue, Jeremiah Ignatius,	Pilot Mound.	Sen. Scientific.
Edsten, Adolph,	Minneapolis.	Special.
Ellis, Frank Wolcott,	Davenport, Ia.,	III. Modern.
Elliott, G. T.,	Pittsburg, Penn.,	Art. Tr. Sch. D.
Elwell, Mary Whitmore.	Minneapolis,	I. Scientific.
Emery, Elwood Allen.	"	II. Modern.
Erickson, O. S.,	"	Art. Tr. Sch. D.
Esplin, Charles Jr.,	"	Art. Tr. Sch. B.
Farnham, Emily Isabella,	"	Special.
Felt, Charles E.,	"	Art. Tr. Sch. B.
Field, Walter Danforth,	"	Special.
Finch, Albert Ames,	Hastings,	III. Scientific.
Firkins, Ina,	Minneapolis,	III. Modern.
Firkins, Oscar,	"	Sen. Classical.
Fitzgerald, Patrick Thomas,	Donnelly,	I. Scientific.
Fleming, Annie Rebecca,	Pine Island,	II. Classical.
Folsom, R. L.,	Minneapolis,	Art. Tr. Sch. D.
Folwell, Mary Heywood,	"	Special.
Frost, Flora Joy,	Jackson,	Special.
Furber, Theodore Lincoln,	Cottage Grove,	Special.
Gideon, Florence Ella,	Excelsior,	III. Modern.
Gilman, John Calvin,	Wasioja,	Special.
Gilman, Joshua Ethan,	"	II. Classical.
Glasoe, Olaf,	Lanesboro,	Special.
Gorham, D. G.,	Minneapolis,	Art. Tr. Sch. D.
Gould, Alfred Bert,	Wasioja,	I. Classical.
Graham, Christopher,	Rochester,	Special.
Grannis, Henry James,	High Forrest,	I. Classical.
Grant, Ulysses Sherman,	Des Moines, Ia.	III. Classical.

Gray, James,	Minneapolis,	Jun. Scientific.
Green, Mary Elvira,	Tower City, D. T.,	I. Modern.
Greenwood, Curtis Langdon,	Rochester,	Jun. Civ. Eng.
Grethen, Otto,	Chaska,	Jun. Classical.
Grimes, Ella Alma,	Minneapolis,	III. Modern
Grimes, Mary Agatha,	"	III. Modern.
Guptil, N. H.,	Worcester, Mass.,	Art. Tr. Sch. D.
Hagan, Fannie Rogers.	Minneapolis,	III. Modern.
Ham, Frank Wells,	"	I. Classical.
Ham, Minnie May,	"	II. Modern.
Hammond, George Harry,	Lake City,	II. Classical.
Harden, George William Wallace,	Le Roy,	III. Classical.
Harrison, William,	Cannon Falls,	III. Classical.
Haugland. Jacob Olsen,	Watson,	Special.
Hawley, John Blackstock,	Red Wing,	Special.
Hays, Amy Naomi,	Minneapolis,	II. Classical.
Heffner, W.,	"	Art. Tr. Sch. D.
Hendrickson, George Lorenzo,	St. Paul,	Sen. Scientific.
Hickox, C. V.,	Rochester,	Art. Tr. Sch. D.
Hibbard, Marvin,	Adrian, Mich.,	Art. Tr. Sch. D.
Hilgedick, E. L.,	Minneapolis,	Art. Tr. Sch. D.
Hinds, Charles Gilbert,	Shakopee,	Special.
Hirshem, I. M.,	Minneapolis,	Art. Tr. Sch. D.
Hinshaw, Jesse Doddridge,	"	II. Classical.
Hinshaw, Millard Everett,	"	II. Classical.
Hoage, William Ricketson,	Rochester,	Sen. Civ. Eng.
Holman, John Elliot,	Cottage Grove,	Art. Tr. Sch. B.
Holmes, Walter B.,	Faribault,	Special.
Holt, Arthur Grant,	Minneapolis,	Jun. Scientific.
Horn, Harry, Jr.,	St. Paul,	Special.
Howling, H.,	Minneapolis,	Art. Tr. Sch. D.
Hutchinson, Joseph Henry Capper,	Hastings,	Sen. Classical.
Huyler, Ida Florence,	Pine Island,	Special.
Ingraham, Alexander,	Minneapolis,	Art. Tr. Sch. C.
Irving, Mary Eliza,	Owatonna,	Jun. Modern.
Jennison, Paul,	Red Wing,	II. Scientific.
Johnson, Anthony,	Newburg,	Sen. Classical.
Johnson, Clarence John,	St. Peter,	III. Scientific.
Johnson, Elwin Bird,	Marshall,	III. Scientific.
Johnson, Frank Amos,	Marshall,	Special.
Jones, Alvah Wilber,	Wauseon, O.	Special.

Jones, Frank Dumars,	Minneapolis,	Art. Tr. Sch. A.
Kennedy, James Ernest,	"	III. Scientific.
Kiehle, Ada Mary,	"	I Scientific.
Kilgore, F. O.,	Bradley, Me.,	Art. Tr. Sch. D.
Kingsbury, Adalyna,	Cassopolis, Mich.,	Sen. Modern.
Kirtland, Elizabeth Emma,	Minneapolis,	III. Modern.
Klampe, Lela Mary,	Dodge Center,	III. Modern.
Klepper, George Horace,	Albert Lea,	Sen. Scientific.
Kolbe, R.,	Minneapolis,	Art. Tr. Sch. D.
Koll, August,	Chicago, Ill.,	Art. Tr. Sch D.
Krach, Fred,	Minneapolis,	Art. Tr. Sch. D.
Lamoreaux, Lowell Andrew,	"	III. Scientific.
Lamoreaux, Milton Sprague,	"	I. Scientific.
Larson, Eli.	Bratsburg,	Sen. Classical.
Langland, Samuel Solfest,	Cedarville,	I. Classical.
Laythe, Bessie,	Chatfield,	Sen. Scientific.
Leich, C. H. B ,	Minneapolis,	Art. Tr. Sch. D.
Loe, Erik,	Red Wing,	Special. Mech. Eng.
Long, Mary Alves,	Minneapolis,	Special.
Loy, George John,	Chaska,	Sen. Civ. Eng.
Ludlum, John Thomas,	Minneapolis,	III. Scientific.
Lyall, Jeannette,	"	Special.
Lyall, Maude Julia,	"	I. Modern.
Manchester, James Eugene,	Blooming Prairie,	Sen. Scientfic.
Manchester, Margaret Smith,	Blooming Prairie,	Special.
Mann, Ida Victoria,	Minneapolis,	Jun. Modern.
Mann, Arthur Teall,	"	III. Scientific.
Marrs, Josephine Florence,	"	I. Modern.
Mathews, Irving Webber,	Luverne,	Sen. Civ. Eng.
McCalman, James,	Minneapolis,	Art. Tr. Sch. C.
McCrae, J. W.,	"	Art. Tr. Sch. D.
McGowan, John,	"	Art. Tr, Sch. D.
McGuire, H.,	"	Art. Tr. Sch. D.
McKenzie, Ralph Murdoch,	Anoka.	II. Classical.
McK n ey, Edwin Arthur,	Litchfield,	I. Scientific.
McKinney, Everson Ryder,	"	Modern.
McKinnon, Thomas,	Sioux Falls,	Art. Tr. Sch. D.
McNair, William Wilson,	Minneapolis,	I. Scientific.
McPheeters, Robert Samuel,	Hamline,	Art. Tr. Sch. B.
Melby, Peter,	Minneapolis,	Art. Tr. Sch. D.
Merriman, O. C. Jr.,	"	Art. Tr. Sch. D.

man, S. H.,	Minneapolis,	Art. Tr. Sch. D.
let, Ore,	"	Art. Tr. Sch. D.
en, William Patton,	Lake City,	II. Scientific.
ell, William James,	Minneapolis,	Special.
sch, Leo,	"	Jun. Scientific.
gomery, Frank Hugh,	St. Cloud,	Special.
s, John,	Bristol,	Special.
on, Amelia Christiana,	Monticello, Iowa,	Jun. Scientific.
on, Charles William,	Cleveland, Ohio.	Jun. Classical.
r, C. R.	Minneapolis,	Art. Tr. Sch. D.
Henry Charles,	"	Art. Tr. Sch. D.
rs, Evelyn Harriet.	Varna, Ill.,	Special.
n, Ellen Marie,	Owatonna,	II. Classical.
Oliver Johnson,	Rochester,	III. Scientific.
agel. Charles Frank,	Brandon,	Special.
nover, Evert,	Minneapolis,	Special.
en, M. B.,	"	Art. Tr. Sch. D.
nd, Oscar Wilhelm,	"	Special.
, Ingerval M.,	Norseland,	Special.
Stella Althea,	Minneapolis,	Special.
on, Nora,	Marshall,	III. Scientific.
m, J. E.,	Minneapolis,	Art. Tr. Sch. D.
ury, Sadie Belle,	"	III. Modern.
ury, Susan May,	"	I. Modern.
roy, John William, Jr,	"	I. Scientific.
r, Olivia Canby,	"	II. Modern.
ll, Mary Alden,	"	I. Modern.
ey, A. G.,	Fond du Lac,	Art. Tr. Sch. D.
Albert Irving,	Hastings,	Jun. Civ. Eng.
D. S.	Minneapolis,	Art. Tr. Sch. D.
Melville Emerson,	Hastings,	III. Scientific.
rds, Frank G.,	Minneapolis,	Art. Tr. Sch. C.
son, John,	South Troy,	III. Scientific.
s, W. F.,	Minneapolis,	Art. Tr. Sch. D.
s, C. G.,	"	Art. Tr. Sch. D.
s, W. O.,	"	Art. Tr. Sch. D.
, Charles Carter,	"	III. Classical.
lot, Joseph Henry,	Faribault,	II. Classicla.
ll, Warren Cogswell,	Winona,	III. Scientific.
ll, Henry Hastings Sibley,	Minneapolis,	Sen. Scientific.
trom, Louis August,	Stockholm, Wis.,	III. Modern.

Sampson, Edward Howland,	Excelsior,	Art. Tr. Sch. A.
Sargeant, Winthrop Webster,	Lake City,	III. Classical.
Schmidt, Charles Christian,	Sleepy Eye,	Sen. Scientific.
Seeback. Oscar Friedrich,	Red Wing,	II. Scientific.
Selden Emma Rowena,	Minneapolis,	Jun. Modern.
Sewall, Elizabeth Quincy,	St. Paul,	I. Classical.
Sewall, Hannah Robie,	"	Sen. Classical.
Sewall, Susan Winifred,	"	Sen. Classical.
Seward, James Israel,	Farmington,	III. Scientific.
Shenehon, Francis Clinton	New York, N. Y.,	Special.
Sherer, William Augustus,	Kasson,	Special.
Shillock, Anna,	Minneapolis,	III. Modern.
Shillock, Maximilian,	Minnetrista,	III. Scientific.
Sjoblom, Peter Gottfried,	Red Wing,	III. Classical.
Smith. Dow Samuel,	Camden,	III. Scientific.
Smith, Frank John,	Spring Valley,	III. Scientific.
Smith, Frank Rhodes,	Minneapolis,	III. Scientific.
Smith, Mary Isadore,	Camden,	II. Modern.
Smith, Mabel Lorraine,	Le Sueur,	Jun. Modern.
Stacey, Alice May,	Monticello.	III. Modern.
Stacey, Francis Newton,	"	II. Classical.
Stimson, Nellie Helena,	Brownsdale,	Special.
Tanner. Edna,	Fairmont,	Special.
Thacher. Eliza Adeline,	Zumbrota,	Special.
Thacher, Ralph Emilius,	"	Special.
Thompson, Charles,	Minneapolis,	II. Modern.
Todd, Fred Downs,	"	III. Scientific.
Trevillyan, J. L.,	"	Art. Tr. Sch. D.
Trussell Thomas Ezekiel,	Champlin,	I. Scientific.
Twichell, Luther,	Minneapolis,	III. Scientific.
Twichell, Mary,	"	III. Modern.
Van Amberg, Frank,	Bennington, N. Y.,	Art. Tr. Sch. D.
Varner, L. E.,	Jordan,	Art. Tr. Sch. D.
Vaughn, Zenas Newton,	Austin,	Sen. Classical.
Walker, G. D.,	Minneapolis,	Art. Tr. Sch. D.
Ware, Lillian Lincoln,	Brownsdale,	I. Scientific.
Way, Charles Milden,	Blue Earth City,	II. Scientific.
Weber, Mary Louise,	Rice Lake,	II. Modern.
Webster, Charles Henry,	Clearwater,	III. Scientific.
Webster, William Franklin,	"	I. Classical.
White, Elmer Ellsworth,	Westfield, Ind.,	I. Classical.

Winchell, Horace Vaughn,	Minneapolis,	Special.
Winchell, Ima Caroline,	"	Special.
Winterer, Edward,	Le Sueur,	Special.
Woodmansee, Charles Comstock	Minneapolis,	Jun. Architecture.
Wyman, A. A.,	Millbridge, Me.,	Art. Tr. Sch. D.
Young, Nicholas,	Minneapolis,	III. Scientific.
Zwinggi, Emma,	St. Peter,	Sen. Scientific.

SUMMARY —1883-84.

COLLEGE OR DEPARTMENT.	CLASS.	Gentlemen.	Ladies.	TOTALS.
SCIENCE, LITERATURE AND ARTS	Senior.	14	7	21
	Junior.	7	6	13— 34
MECHANIC ARTS	Senior.	3		3
	Junior.	4		4
	Specials.	1		1— 8
	Art. Tr. Sch. A	4		4
	B	4		4
	C	9		9
	D	47		47— 64
AGRICULTURE,	Specials.	1		1— 1
COLLEGIATE DEPARTMENT	I	16	10	26
	II	20	10	30
	III	38	21	59
	Specials.	36	21	57—172
		204	75	279
Deduct, twice counted		1		1
Totals		203	75	278

BY CLASSES ONLY.

SENIORS—OF ALL DEPARTMENTS	24
JUNIORS—OF ALL DEPARTMENTS	17
SOPHOMORES—COLLEGIATE DEPARTMENT	26
FRESHMEN— " "	30
SUB-FRESHMEN— " "	59
SPECIALS OF ALL DEPARTMENTS	57
ARTISANS' TRAINING SCHOOL	64
TOTAL	— 278
CANDIDATES FOR MASTERS' DEGREES	10
ATTENDING SUMMER SCHOOL OF SCIENCE	105
FARMERS' LECTURE COURSE	1118

CLASS LISTS.

I. COLLEGIATE DEPARTMENT.—1883-84.

SOPHOMORES-26.

Amy,	md.
Andrews,	sc.
Bassett,	sc.
Bennett,	sc.
Crafts,	md.
Elwell,	sc.
Fitzgerald,	sc.
Gould,	cl.
Grannis,	cl.
Green,	md.
Ham,	cl.
Kiehle,	md.
Langland,	cl.
Lyall, M. J.	md.
McKinney, E. A.,	sc.
McKinney, E. R.,	md.
McNair,	sc.
Marrs,	md.
Pillsbury, S. M.,	md.
Pomeroy,	sc.
Powell,	md.
Sewall, E. Q,	cl.
Trussell,	sc.
Ware,	sc.
Webster, W. F.,	cl.
White,	cl.

FRESHMEN-30.

Adams, J. W.,	cl.
Anderson, J. M.,	sc.
Brown, B. W.,	md.
Burnell,	md.
Countryman,	md.
Cheney,	md.
Crane,	sc.
Cross,	sc.
Croswell,	sc.
Dinsmoor,	sc.
Emery,	md.
Fleming,	cl.
Gilman, J. E.,	cl.
Ham,	md.
Hays,	cl.
Hammond,	cl.
Hinshaw, J. D.,	sc.
Hinshaw, M. E.,	cl.
Jennison.	sc.
Lamoreaux, M. S.,	cl.
McKenzie,	sc.
Milliken,	sc.
Nelson,	cl.
Porter,	md.
Rosselott,	cl.
Seeback,	sc.
Smith, M. I.,	md.
Stacey,	sc.
Thompson,	md.
Way,	cl.
Weber,	md.

SUB-FRESHMEN-59.

Adams, A. A.,	md.
Adams, C. T.,	md.
Alden, J. M.,	md.
Anderson, A. P.,	sc.
Arnold, T. H.,	sc.
Arnold, J. B.,	sc.
Baker, S. B.,	md.
Barker,	sc.
Bradford, E. B.	md.
Blanchard, C. M.	md.
Blanchard, M. L.,	md.
Brown, H. M.,	sc.
Butts,	sc.
Camp,	md.
Castner.	sc.
Clark,	md.
Cook,	sc.
Davidson.	sc.
Ellis,	md.
Finch,	sc.
Firkins,	md.
Gideon,	md.
Grant.	cl.
Grimes, E. A.	md.
Grimes, M. A.,	md.
Hagen,	md.
Harden,	cl.
Harrison,	cl.
Johnson, C. J.,	sc.
Johnson, E. B.,	sc.
Kennedy,	sc.
Kirtland,	md.
Klampe,	sc.
Lamoreaux, L. A.,	sc.
Ludlum,	sc.
Mann,	sc.
Niles,	sc.
Pearson,	sc.
Pillsbury, S. B.,	md.
Reed, M. E.,	sc.
Robinson,	sc.
Rollitt,	cl.
Rowell, W. C.,	sc.
Sahlstrom,	md.
Sargeant,	cl.
Seward,	sc.
Shillock,	md.
Shillock,	sc.
Sjoblom,	cl.
Smith, D. S.,	sc.
Smith, F. J,	sc.
Smith, F. R.,	sc.
Stacy,	md.
Todd,	sc.
Twichell,	sc.
Twichell,	md.
Webster, C. H.,	sc.
Young,	sc.

SPECIALS-57.

Alander,
Alden, B. F.,
Anderson,
Arnold, W. A.,
Baker, L. L.,
Baker, G.
Beck,
Bernard,
Blanding,
Black,
Briggs,
Brokaugh,
Brown, R. S.,
Cady,
Castner,
Cox,
Coe,.
Dahl,
Davis,
Edsten,
Farnham,
Field,
Folwell,
Furber,
Frost,
Gilman, J. C.,
Glasoe,
Graham,
Hangland,
Hawley,
Hinds,
Holmes,
Horn,
Huyler.
Johnson, F. A.
Jones, A. W.,
Loe,
Long,
Lyall, J.,
Manchester,
Mitchell,
Montgomery,
Morris,
Myers,
Nootnagel,
Nymanover,
Oestlund,
Olson,
Page,
Shenahon,
Sherer,
Stimson,
Tanner,
Thacher,
Thacher,
Winchell,
Winchell,
Winterer.

II. COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

GRADUATES.

CANDIDATES FOR MASTERS' DEGREES.

JOEL NATHANIEL CHILDS, B. A., 1877, for M. A.
HENRY CLAY LEONARD, M. D., B. S., 1878, for M. S.
CHARLOTTE ADELAIDE ROLLIT, B. L., 1877, for M. L.
JULIUS CLARENCE BRYANT, B. A., 1878, for M. A.
CORA INEZ BROWNSON, B. A., 1880, for M. A.
LIZZIE AUGUSTA HOUSE, B. L., 1880, for M. L.
MATILDA JANE WILKIN, B. L., 1877, for M. L.
HENRY S. BAKER, B. A., Middlebury, 1869, for M. S.
ROBERT P. A. NIX, B. S., 1880, for M. S.
JOHN M. DAVIS, B. A., Wake Forest, 1880, for M. S

UNDERGRADUATES—

SENIORS—21.

ADAMS, E. E.,	B. A.	KLEPPER,	B. S.
BAKER,	B. S.	LARSON,	B. A.
BONFOY,	B. L.	LAYTHE,	B. S.
BRADFORD, B. M.,	B. L.	MANCHESTER,	B. S.
BUTLER,	B. A.	ROWELL,	B. S.
DONAHUE,	B. S.	SCHMIDT,	B. S.
FIRKINS,	B. A.	SEWALL,	B. A.
HENDRICKSON,	B. S.	SEWALL,	B. A.
HUTCHINSON,	B. A.	VAUGHN,	B. A.
JOHNSON, A..	B. A.	ZWINGGI,	B. S.
KINGSBURY,	B. L.		

JUNIORS—13.

ABBOTT,	B. L.	MANN,	B. L.
BALDWIN,	B. L.	MONASCH,	B. S.
BENTON,	B. A.	MOULTON,	B. S.
GRAY,	B. S.	MOULTON,	B. A.
GRETHEN,	B. A.	SELDEN,	B. L.
HOLT,	B. A.	SMITH, M. L.,	B. L.
IRVING,	B. L.		

III. COLLEGE OF MECHANIC ARTS.

SENIOR YEAR.

Civil Engineering.—HOAG, LOY, MATTHEWS.

JUNIOR YEAR.

Civil Engineering—Regular, GREENWOOD, REED.

Mechanical Engineering.—Regular, BUSHNELL; Special, LOE.

Architecture—WOODMANSEE.

ARTISANS' TRAINING SCHOOL.

A Division.—MESSRS. BAIER, BUDDS, JONES, SAMPSON.

B Division.—MESSRS. ESPLIN, FELT, HAWLEY, HOLMAN, MCPHEETERS.

C Division.—MESSRS. BOLSTADT, BLEEKER, BRACKETT, CULLEN, DARCY, INGRAHAM, MCCALMAN, MULL, RICHARDS.

D Division.—MESSRS. ARMSTRONG, BECKWITH, BOLAND, BOLSTADT, BRADBURY, CAMERON ADAM, CAMPBELL, DARCY, DARE, DEVINE, DICK, ELLIOTT, ERICKSEN, ESPLIN, FOLSOM, GORHAM, GUPTIL, HEFFNER, HIBBARD, HICKOX, HILGEDICK, HINSHAW, HOWLING, KILGORE, KOLBE, KOLL, KRACH, LEICH, MCCALMAN, MCCRAE, MCGOWAN, MCGUIRE, MCKINNON, MELBY, MERRIMAN, O. C. JR., MERRIMAN, S. H., MICHELET, MOYER, O'BRIEN, PILGRIM, RAMSEY, REED D. S., RICHARDS, ROGERS, ROLLINS C. G., ROLLINS M. O., TREVILLYAN, VAN AMBERG, VARNER, WALKER, WOODMANSEE, WYMAN.

APPENDIX.

LAW *for the Encouragement of Higher Education. Almanac*, 1884-5. CONTENTS.

AN ACT FOR THE ENCOURAGEMENT OF HIGHER EDUCATION.

Be it enacted by the legislature of the state of Minnesota:

SECTION 1. The governor, superintendent of public instruction, and the president of the University of Minnesota, *ex-officio*, are hereby constituted a board of commissioners on preparatory schools for the encouragement of higher education in this state. This board shall be called the "High School Board," and shall perform the duties and have and exercise the powers hereinafter mentioned.

SEC. 2. Any public graded school * * * which school shall give preparatory instruction according to * * * this act, and shall admit students of either sex from any part of the state without charge for tuition, shall be entitled to receive pecuniary aid * * * Provided, etc.

SEC. 3. The said board shall require of the schools * * * compliance with the following conditions, to wit:

FIRST. That there be regular and orderly courses of study, embracing all the branches pre-requisite for admission to the collegiate department of the University of Minnesota. SECOND. That the said schools * * * shall at all times permit the said board of commissioners, or any of them, to visit and examine the classes pursuing the said preparatory courses.

SEC. 4. Requires inspection, report and approval before payment of money.

SEC. 5. Appropriates $23,000 annually—$100 to each approved school.

SEC. 6. Requires members to serve without compensation, but pays expenses.

SEC. 7. Grants power to make all necessary and suitable rules and regulations.

SEC. 8. Requires records and an annual report.

SEC. 9. This act shall take effect, &c. Approved March 3, 1881.

The high school board was duly organized under this law, May 20th, 1881, by the adoption of a resolution declaring that "the governor of the state shall be president, the superintendent of public instruction shall be secretary, and the president of the state university shall have charge of all examinations required under this act."

A supplementary act, approved November 18, 1881, further provides that The high school board shall have full discretionary power to consider and act upon applications of schools for state aid, and to prescribe the conditions upon which said aid shall be granted, but not more than three schools shall be aided in each county in any one year.

A system of examinations on the studies of the "university preparatory course," as prescribed by the board has been organized on the following plan: A class being about to complete a study, the superintendent makes requisition on the examiner for questions. These are sent by mail to the superintendent, who is obligated to keep the enclosing envelope sealed till the class are seated ready for examination. The answers having been written, read and marked by the superintendent or principal, are transmitted to the examiner of the board, by whom they are finally examined, marked and recorded. Every pupil on passing the examination in any study receives through his principal a certificate on which is printed the following endorsement: "On applying for admission to the UNIVERSITY OF MINNESOTA, present this certificate and you will be excused from examination in the study named"

The high school board have further extended the advantages of their examination system to ALL high schools, normal schools and academies of the state, and the board of regents have authorized the acceptance by the university of all high school board certificates duly awarded to their students.

General correspondence should be addressed to the secretary, Hon. D. L. Kiehle, State Supt., St. Paul, Minn.

Correspondence relating to examinations only should be addressed to the President of the University of Minnesota, Minneapolis, Minn.

ALMANAC, 1884-85.

SEPTEMBER, 1884. [FIRST TERM BEGINS.]

1	Mon.	
2	Tues.	YEAR 1884-5 BEGINS. Gen. faculty meet, 9 A. M. Special faculties on call.
3	Wed.	Entrance examinations 8 A. M.
4	Thurs.	Entrance exams. continue.
5	Fri.	Exams. for advanced rank.
6	Sat.	Examinations conclude......1 w.
7	Sun.	
8	Mon.	
9	Tues.	Recitations and lectures begin.
10	Wed.	Library and museum open.
11	Thurs.	
12	Fri.	
13	Sat.	Gen. faculty meet Saturdays, [4 P. M...2 w.
14	Sun.	
15	Mon.	Literary societies meet 7 P. M.
16	Tues.	Military exercises begin.
17	Wed.	
18	Thurs.	
19	Fri.	
20	Sat.	....3 w.
21	Sun.	
22	Mon.	
23	Tues.	
24	Wed.	
25	Thurs.	Executive Committee meet.
26	Fri.	
27	Sat.	....4 w.
28	Sun.	
29	Mon.	
30	Tues.	

OCTOBER, 1884. [FIRST TERM.]

1	Wed.	
2	Thurs.	
3	Fri.	
4	Sat.	Fac. Coll. S. L. & A. 5 P. M. 5 w
5	Sun.	
6	Mon.	
7	Tues.	
8	Wed.	
9	Thurs.	
10	Fri.	
11	Sat.	State constitution adptd. 1857 [6 w.
12	Sun.	
13	Mon.	
14	Tues.	
15	Wed.	
16	Thurs.	
17	Fri.	
18	Sat.	.............................7 w.
19	Sun.	
20	Mon.	
21	Tues.	
22	Wed.	
23	Thurs.	
24	Fri.	
25	Sat.	.............................8 w.
26	Sun.	
27	Mon.	
28	Tues.	
29	Wed.	
30	Thurs.	
31	Fri.	

NOVEMBER, 1884, [FIRST TERM ENDS.]

1	Sat.	Fac. Coll. S. L. & A. 5 P. M. 9 w
2	Sun.	
3	Mon.	
4	Tues.	
5	Wed.	Evening drawing school begins
6	Thurs.	
7	Fri.	
8	Sat.	.............................10 w.
9	Sun.	
10	Mon.	
11	Tues.	National and state elections.
12	Wed.	
13	Thurs.	
14	Fri.	
15	Sat.	.............................11 w.
16	Sun.	
17	Mon.	
18	Tues.	
19	Wed.	
20	Thurs.	
21	Fri.	
22	Sat.	.............................12 w.
23	Sun.	
24	Mon.	
25	Tues.	Term examinations.
26	Wed.	Term examinations.
27	Thurs.	National thanksgiving day.
28	Fri.	[FIRST TERM ENDS.]
29	Sat.	
30	Sun.	

DECEMBER, 1884. [2D TERM BEGINS.]

1	Mon.	
2	Tues.	SECOND TERM BEGINS.
3	Wed.	
4	Thurs.	
5	Fri.	
6	Sat.	Gen. faculty meet Saturdays, [4 P. M.........1 w.
7	Sun.	
8	Mon.	
9	Tues.	ANNUAL MEETING, REGENTS.
10	Wed.	Fac. Coll. Mech. Arts, 4 P. M.
11	Thurs.	Fac. Coll. Agriculture.
12	Fri.	
13	Sat.	....2 w.
14	Sun.	
15	Mon.	
16	Tues.	
17	Wed.	
18	Thurs.	
19	Fri.	
20	Sat.	Recess begins.....................3 w.
21	Sun.	
22	Mon.	
23	Tues.	
24	Wed.	Executive committee meet.
25	Thurs.	Christmas day.
26	Fri.	
27	Sat.	
28	Sun.	
29	Mon.	
30	Tues.	
31	Wed.	

JANUARY, 1885.		[SECOND TERM.]
1	Thurs.	NEW YEAR'S DAY,
2	Fri.	
3	Sat.	Fac. Coll. S. L. & A.. 5 P. M. 4 w.
4	Sun.	
5	Mon.	
6	Tues.	
7	Wed.	
8	Thurs.	
9	Fri.	
10	Sat.	....5 w.
11	Sun.	
12	Mon.	
13	Tues.	
14	Wed.	
15	Thurs.	
16	Fri.	
17	Sat.	....6 w.
18	Sun.	
19	Mon.	
20	Tues.	Farmers' Lecture Course begins.
21	Wed.	
22	Thurs.	
23	Fri.	
24	Sat.	....7 w.
25	Sun.	
26	Mon.	
27	Tues.	
28	Wed.	
29	Thurs.	Executive Committee meet.
30	Fri.	
31	Sat.	Day of prayer for colleges. 8 w.

FEBRUARY. 1885.		[2D TERM ENDS.]
1	Sun.	
2	Mon.	
3	Tues.	
4	Wed.	
5	Thurs.	
6	Fri.	
7	Sat.	Fac. Coll. S. L. & A. 5 P. M. 8 w.
8	Sun.	
9	Mon.	
10	Tues.	
11	Wed.	
12	Thurs.	
13	Fri.	Home oratorical contest.
14	Sat.	....10 w.
15	Sun.	
16	Mon.	
17	Tues.	
18	Wed.	
19	Thurs.	
20	Fri.	
21	Sat.	....11 w.
22	Sun.	Washington's birthday.
23	Mon.	
24	Tues.	
25	Wed.	Term examinations.
26	Thurs.	Term examinations.
27	Fri.	SECOND TERM ENDS.
28	Sat.	

MARCH, 1885.		[THIRD TERM BEGINS.]
1	Mon.	THIRD TERM BEGINS.
2	Tues.	Recitations and lectures begin.
3	Wed.	
4	Thurs.	
5	Fri.	[1 w.
6	Sat.	Gen. Fac. Saturdays 4 P. M.
7	Sun.	
8	Mon.	
9	Tues.	Fac. Coll. Mech. Arts, 4 P. M.
10	Wed.	Fac. Coll. Agr. meet 4 P. M.
11	Thurs.	
12	Fri.	
13	Sat.	...............................2 w.
14	Sun.	
15	Mon.	
16	Tues.	
17	Wed.	
18	Thurs.	
19	Fri.	
20	Sat.	....3 w.
21	Sun.	
22	Mon.	
23	Tues.	
24	Wed.	
25	Thurs.	Executive Committee meet.
26	Fri.	
27	Sat.	.. ..4 w.
28	Sun.	
29	Mon.	
30	Tues.	
31	Wed.	

APRIL, 1835.		[THIRD TERM.]
1	Thurs.	
2	Fri.	Good Friday.
3	Sat.	Fac. Coll. S. L. & A. 5 P. M. 5 w.
4	Sun.	Easter Day.
5	Mon.	
6	Tues.	
7	Wed.	
8	Thurs.	
9	Fri.	
10	Sat.	....6 w.
11	Sun.	
12	Mon.	
13	Tues.	
14	Wed.	
15	Thurs.	
16	Fri.	State Oratorical Contest.
17	Sat.	....7 w.
18	Sun.	
19	Mon.	
20	Tues.	
21	Wed.	
22	Thurs.	
23	Fri.	
24	Sat.	....8 w.
25	Sun.	
26	Mon.	
27	Tues.	
28	Wed.	
29	Thurs.	Executive Committee meet.
30	Fri.	

MAY, 1885.		[THIRD TERM ENDS.]
1	Sat.	Fac. Coll. S. L. and Arts, [5 P. M. 9 w
2	Sun.	
3	Mon.	
4	Tues.	
5	Wed.	
6	Thurs.	
7	Fri.	
8	Sat.	....10 w
9	Sun.	
10	Mon.	
11	Tues.	Senior examinations.
12	Wed.	
13	Thurs.	
14	Fri.	
15	Sat.	
16	Sun.	....11 w
17	Mon.	
18	Tues.	Prof. Walker d. 1875.
19	Wed.	Library closes for inventory.
20	Thurs.	
21	Fri.	Term examinations.
22	Sat.	Term examinations............12 w
23	Sun.	
24	Mon.	Field day. athletic association.
25	Tues.	Senior class day.
26	Wed.	Alumni day.
27	Thurs.	THE COMMENCEMENT.
28	Fri.	Vacation begins.
29	Sat.	
30	Sun.	
31	Mon.	

JUNE. 1885.		[VACATION.]
1	Tues.	
18	Wed.	June exams. for entrance.
19	Thurs.	" " " "
30	Mon.	

JULY, 1885.		[VACATION.]
1	Tues.	
11		Prof. Marston d. 1883.
31	Fri.	

AUGUST, 1885.		[VACATION.]
1	Sun.	
31	Mon.	

The University Year, 1885-86 will open SEPTEMBER 8, 1885.

SUMMER SCHOOL FOR TEACHERS, 1883.

The following courses of instructions for teachers and others were opened at the University on July 10th, 1883, and continued four weeks:

I. ZOOLOGY.—Mr. C. L. Herrick.

II. CHEMISTRY.—Prof. J. A. Dodge.

III. FRENCH.—Prof. C. W. Benton.

IV. DIDACTICS.—Prof. Wm. H. Payne.

Some special lessons in Elocution, &c., were given by Prof. Sanford and other persons.

Owing to the meeting of the National Educational Association at Madison in the middle of the month of July, the Summer School will not be opened in 1884.

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IMPORTANT TO SUPERINTENDENTS.

The attention of boards of education and of superintendents and principals of high schools, in particular of schools not receiving aid under the act of March 3, 1881, is respectfully asked to the action of the board of regents in regard to admission to the collegiate department of the University.

The plan of admitting applicants to the freshman class upon certificates of superintendents and principals is abolished, and the arrangements for admitting pupils from schools receiving state aid are by the co-operation of the state high school board extended to embrace all other high and graded schools.

The new plan is substantially as follows: any superintendent or principal desirous of securing its advantages for his graduates, will give notice to the secretary of the high school board, Hon. D. L. Kiehle, state superintendent. At any convenient time thereafter in the school year, he may apply to the examiner of the high school board at the University for sealed examination questions in any of the branches included in the "university preparatory course," and examine classes by means of them, conforming to the regulations prescribed for corresponding examinations in schools receiving state aid under the supervision of the high school board.

By authority of the board of regents all certificates for examinations passed under this plan, will be accepted at the University on presentation by applicants for admission who will be excused from examination in the corresponding studies. Applicants bringing certificates for all the studies of the "university preparatory course," will, accordingly be admitted without any examinations.

It is believed that this plan will commend itself. The opportunity of passing their examinations and obtaining their credits at the moment of concluding each branch of study will stimulate earnest pupils, and relieve them of anxiety as to the results of a large number of examinations to be undergone in haste a long time after the completion of the studies in school.

LÉTOILE DU NORD

THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1884-1885.

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THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1884-85.

The Annual Calendar, published at Commencement by authority of the Board of Regents, is a record of the membership and condition of the University for the given University year, and also contains the courses of study and other announcements for the University year following.

The Calendar will be sent gratuitously, postage paid, to all persons who apply for it.

THE

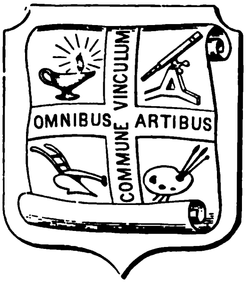
UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1884-85.



BY THE UNIVERSITY:

MINNEAPOLIS,

1885.

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CALENDAR.

1885		
Sept. 1	Tuesday	Year of 1885–86 begins. Entrance examinations, 9:00 A. M.
Sept. 2	Wednesday	Entrance examinations concluded.
Sept. 3	Thursday	Examinat'ns for advanced rank & condit'ns.
Sept. 4	Friday	" " " "
Sept. 8	Tuesday	Registration; recitations and lectures begin.
Nov. 24	Tuesday	Term examinations.
Nov. 25	Wednesday	" "
Nov. 26	Thursday	Thanksgiving day. 1st term ends 13th week.

Dec. 1	Tuesday	Second term term begins.
Dec. 19	Saturday	Recess begins.

WINTER VACATION OF TWO WEEKS.

1886		
Jan. 5	Tuesday	Work of second term resumed.
Mar. 2	Tuesday	Term examinations.
Mar. 3	Wednesday	" "
Mar. 4	Thursday	Examinations for conditions.
Mar. 5	Friday	" "
Mar. 6	Saturday	Second term ends - - 25th week.

Mar. 9	Tuesday	Third term begins.
May 18	Tuesday	Senior examinations.
May 19	Wednesday	" "
May 28	Friday	Term examinations.
May 29	Saturday	" "
May 31	Monday	Field day.
June 1	Tuesday	Senior class day.
June 2	Wednesday	Alumni day.
June 3	Thursday	Commencement - - 38th week.

June 8	Tuesday	Entrance Examinations.
June 9	Wednesday	" "

THE BOARD OF REGENTS.

The HON. GREENLEAF CLARK, M. A., St. Paul,	1886
The HON. CUSHMAN K. DAVIS, M. A., St. Paul,	1886
The HON. KNUTE NELSON, Alexandria,	1887
The HON. JOHN S. PILLSBURY, Minneapolis,	1887
The HON. HENRY H. SIBLEY, St. Paul,	1888
The HON. THOMAS S. BUCKHAM, M. A., Faribault,	1888
The HON. JOHN B. GILFILLAN, Minneapolis,	1888
The HON. LUCIUS F. HUBBARD, St. Paul, **The Governor of the State.**	*Ex-Officio*
The HON. DAVID L. KIEHLE, M. A., St. Paul, **The State Superintendent of Public Instruction.**	*Ex-Officio*
CYRUS NORTHROP, LL. B., Minneapolis, **The President of the University.**	*Ex-Officio*

OFFICERS OF THE BOARD.

The HON. HENRY H. SIBLEY,	*President*
The HON. DAVID L. KIEHLE,	*Recording Secretary*
PRESIDENT CYRUS NORTHROP,	*Corresponding Secretary*

THE EXECUTIVE COMMITTEE.

The HON. JOHN S. PILLSBURY, *Chairman.*
The HON. JOHN B. GILFILLAN.
The HON. DAVID L. KIEHLE.

FACULTY AND INSTRUCTORS.

Cyrus Northrop, LL. B., President, *1008 University Ave., S. E.*

William W. Folwell, LL. D., *1020 Fifth Street, S. E.*
Professor of Political Science and Librarian.

Jabez Brooks, D. D., *1708 Laurel Avenue.*
Professor of the Greek Language and Literature;
and in charge of the department of Latin.

Newton H. Winchell, M. A., Prof. Geol. & Min., *State St., S. E.*
State Geologist and Curator of the General Museum.

Charles N. Hewitt, M. D., *Red Wing.*
Professor of Preventive Medicine.

John G. Moore, B. A., *2850 University Avenue S. E.*
Professor of the German Language and Literature.

Christopher W. Hall, M. A., *904 University Avenue S. E.*
Professor of Geology, Mineralogy and Biology.

John C. Hutchinson, B. A., *3806 Nicollet Ave,*
Assistant Professor of Greek and Mathematics.

John S. Clarke, B. A., *413 Monroe St., E. D.*
Assistant Professor of Latin (absent in Europe).

Matilda J. Wilkin, B. L., *1413 University Ave., S.*
Instructor in English and German.

MARIA L. SANFORD, *1401 Sixth Street, S. E.*
Professor of Rhetoric and Elocution.

WILLIAM A. PIKE, C. E., *2525 University Avenue S. E.*
Professor of Engineering, and in charge of Physics.

JOHN F. DOWNEY, M. A., C. E., *801 Seventh Street, S. E.*
Professor of Mathematics and Astronomy.

JAMES A. DODGE, Ph. D., *417 Eighth Avenue, S. E.*
Professor of Chemistry.

CHARLES W. BENTON, B. A., *419 Eighth Avenue S. E.*
Professor of the French Language and Literature.

EDWARD D. PORTER, M. A., *Experimental Farm.*
Professor of the Theory and Practice of Agriculture.

WILBER F. DECKER, B. M. E., *519 Eleventh Avenue S. E.*
Instructor in Shop Work, Drawing and Physics.

FRANKLIN STAPLES, M. D., *Winona.*
Professor of the Practice of Medicine.

DANIEL W. HAND, M. D., *Saint Paul.*
Professor of Surgery.

WILLIAM H. LEONARD, M. D., *Minneapolis.*
Professor of Obstetrics and Diseases of Women
and Children.

PERRY H. MILLARD, M. D., *Stillwater.*
Professor of Anatomy and Physiology.

THOMAS PEEBLES, B. A., *427 Fifth Street, S. E.*
Instructor in Mental and Moral Philosophy
and History.

O. J. BREDA, *1322 Sixth St., S. E.*
Professor of the Scandinavian Languages and
Literatures.

GEO. EDWIN MACLEAN, Ph. D., *1100 Fifth Street S. E.*
Professor of the English Language and Literature.

CHARLES E. SMITH, M. D., *Saint Paul.*
Professor of Materia Medica and Therapeutics.

GEORGE W. WOOD, M. D., *Faribault.*
Professor of Diseases of the Nervous System, and of Medical Jurisprudence.

CHARLES SIMPSON, M. D., *Minneapolis.*
Professor of Pathology.

W. FRANK CARR, B. S., *714 University Avenue, S. E.*
Instructor in Civil Engineering.

CHARLES F. SIDENER, B. S., *501 Fourth Street S. E.*
Instructor in Chemistry.

HENRY F. NACHTRIEB, B. S., *519 Eleventh Avenue S. E.*
Instructor in Biology.

OTHER OFFICERS.

LETTIE M. CRAFTS, B. L., *610 Fifth St. S. E.*
Assistant Librarian.

FRANK A. JOHNSON, *622 Fourteenth Avenue S. E.*
Registrar.

JOHN E. GALLOW, *Main Building.*
Janitor.

EDWIN ANTHONY CUZNER, *214 State Street S. E.*
Superintendent of the Plant Houses.

STUDENTS.

Alphabetical Roll by Classes, 1884-'85.

I. GRADUATE STUDENTS, 17.

Patrick Joseph Butler, B. A., '84,	University of Minnesota.
Fred Leslie Couillard, B. S., '78,	" "
Lettie May Crafts, B. L., '81,	" "
Charles Lincoln Edwards, B. S.,	Lombard Univ., Galesburg, Ill.
Frank Healy, B. A., '82,	University of Minnesota.
Lizzie Augusta House, B. L., '80,	" "
Laura Alberta Linton, B. S., '79,	" "
Oscar William Oestlund, B. A.,	Augustana Col., Rock Island Ill.
Eli Milton Skiff Pickett, B. A., '82,	University of Minnesota.
Helen Louise Pierce, B. A., '83,	" "
*Charlotte Adelaide Rollit, B. L., '77,	" "
George Nelson Salisbury, B. S., '83,	" "
Charles Frederic Sidener, B. S., '83,	" "
Louis Orville Smith, B. C. E., 83,	" "
Emma Frances Trussell, B. S., '83,	" "
Emma Jane Ware, B. S., '83,	" "
Matilda Jane Campbell [Wilkin] B. L., '77,	" "

II. UNDERGRADUATE STUDENTS, 293.

SENIOR CLASS, 12.

Howard Strickland Abbott,	Rockford,	Modern.
Mary Lathrop Benton,	Minneapolis,	Classical.
Elbert Ellsworth Bushnell,	Minneapolis,	Mech. Engr'g.
Patrick Thomas Fitzgerald,	Donnelly,	Civil Engr'g.
James Gray,	Minneapolis,	Scientific.
Mary Eliza Irving,	Owatonna,	Modern.
Samuel Solfest Langland,	Cedarville,	Classical.
Cassius Marcius Locke,	Minneapolis,	Scientific.
Ida Victoria Mann,	Minneapolis,	Modern.
Charles William Moulton,	Cleveland, Ohio,	Classical.
Albert Irving Reed,	Hastings,	Civil Engr'g.
Mabel Lorrain Smith,	Le Sueur,	Modern.

JUNIOR CLASS, 21.

John William Adams,	Lake City,	Classical.
Jennie May Amy,	Minneapolis,	Modern
John William Bennett,	Montrose,	Scientific.
Leo Melville Crafts,	Minneapolis,	Modern.
Mary Whitmore Elwell,	Minneapolis,	Scientific.
Henry James Grannis,	High Forrest,	Classical.
Frank Amos Johnson,	Marshall,	Scientific.
Joseph Kennedy,	Oshawa,	Scientific.
Ada Mary Kiehle,	Minneapolis,	Modern.
James Charles Elliott King,	Otsego,	Classical.
Maude Julia Lyall,	Minneapolis,	Modern.
Josephine Florence Marrs,	Minneapolis,	Modern.
Mary Alden Powell,	Minneapolis,	Modern.
Elizabeth Quincy Sewall,	St. Paul,	Classical.
Lillian Lincoln Ware,	Brownsdale,	Scientific.
William Franklin Webster,	Clearwater,	Classical.
Charles Comstock Woodmansee,	Minneapolis,	Architecture.

Albert Melancthon Baldwin,	Tower City, D. T.,	Modern.
Bertha Winnie Brown,	Richfield,	Scientific.
Curtis Langdon Greenwood,	Rochester,	Scientific.
Thomas Ezekiel Trussell,	Champlin,	Agricultural.

SOPHOMORE CLASS, 30.

Franklin Harley Bassett,	Glyndon,	Scientific.
George Edwin Burnell,	Minneapolis,	Modern.
*Jennie Louise Cheney,	Minneapolis,	Modern.
Gratia Alta Countryman,	Minneapolis,	Scientific.
Fremont Crane,	Mapleton,	Scientific.
Norton Murdock Cross,	Minneapolis,	Scientific.
Thomas Henry Croswell,	Minneapolis,	Scientific.
Adelbert, Orsman Dinsmoor,	Austin,	Scientific.
Elwood Allen Emery,	Minneapolis,	Modern.
Joshua Ethan Gilman,	Wasioja,	Classical.
Alfred Bert Gould, A,	Wasioja,	Classical.
Christopher Graham,	Rochester,	Scientific.
George Harry Hammond,	Lake City,	Classical.
Jesse Doddridge Hinshaw,	Minneapolis,	Scientific.
Millard Everett Hinshaw,	Minneapolis,	Classical.
Paul Jennison,	Red Wing,	Scientific.
Lowell Andrew Lamoreaux,	Minneapolis,	Scientific.
Milton Sprague Lamoreaux,	Minneapolis,	Scientific.
Ralph Murdoch McKenzie,	Anoka,	Classical.
Edwin Arthur McKinney,	Litchfield,	Scientific.
William Patten Milliken,	Lake City,	Scientific.
Ingerval M Olsen,	St. Peter,	Scientific.
Olivia Canby Porter,	Minneapolis,	Modern.
Melville Emerson Reed,	Hastings,	Scientific.
Joseph Henry Rosselot,	Faribault,	Classical.
Warren Cogswell Rowell,	Winona,	Scientific.
Oscar Frederick Seeback,	Red Wing,	Scientific.
Mary Isadore Smith,	Minneapolis,	Modern.
Francis Newton Stacy,	Monticello,	Classical.
Elmer Ellsworth White,	Westfield, Ind.,	Classical.

FRESHMAN CLASS, 47.

Alice Anna Adams,	Minneapolis,	Modern.
Josiah Moore Anderson,	Eden Prairie,	Scientific.
Nellie Ingalls Barker,	Monticello,	Scientific.
Percival Ramsey Benson,	Anoka,	Classical.
Bruno Bierbauer;	Mankato,	Scientific.
Caroline Maria Blanchard,	Zumbrota,	Modern.
Mary Elizabeth Blanchard,	Zumbrota,	Modern.
Eva Berenice Bradford.	Monticello,	Modern.
Herman Milton Brown,	Richfield,	Scientific.
Edmund Luther Butts,	Stillwater,	Scientific.
Bertha Glee Camp,	Minneapolis,	Modern.
Henry Elmer Cook,	Fairpoint,	Scientific.
Albert Ames Finch,	Hastings,	Scientific.
Ina Firkins,	Minneapolis,	Modern.
Severt Germo,	Medo,	Modern.
Ulysses Sherman Grant,	Minneapolis,	Scientific.
Fannie Rogers Hagan,	Minneapolis,	Modern.
Minnie May Ham,	Minneapolis,	Modern.
Amy Naomi Hays,	Minneapolis,	Classical.
Clifford Lloyd Hilton,	Fergus Falls,	Classical.
Fred Ezra Hobbs,	Winona,	Modern.
Clarence John Johnson,	St. Peter,	Scientific.
Elwin Bird Johnson,	Marshall,	Scientific.
Rollin Erastus Johnson,	Medford,	Classical.
James Ernest Kennedy,	Minneapolis,	Scientific.
William Joseph Leary,	Owatonna,	Classical.
Lane McGregor,	Oxford, Ohio,	Classical.
Everson Ryder McKinney,	Litchfield,	Modern.
Arthur Teall Mann,	Minneapolis,	Scientific.
Thomas Alfred Miller,	Lake City,	Scientific.
Ellen Marie Nelson, A,	Owatonna,	Classical.
Susan Hawley Olmstead,	New Haven, Conn.,	Modern.
Sadie Belle Pillsbury,	Minneapolis,	Modern.
Winthrop Webster Sargeant,	Lake City,	Classical.
Anna Shillock,	Minneapolis,	Modern.
Maximilian Shillock,	Minneapolis,	Scientific.
Peter Gottfried Sj^{o}blom,	Red Wing,	Classical.

Dow Samuel Smith,	Minneapolis,	Scientific.
Frank Rhodes Smith,	Minneapolis,	Scientific.
Alice May Stacy,	Monticello,	Modern.
Charles Thompson,	Minneapolis,	Modern.
Helmus Wells Thompson,	Wells,	Classical.
Fred Downs Todd,	Minneapolis,	Scientific.
Luther Twichel	Minneapolis,	Scientific.
Mary Louise Weber, A,	Rice Lake,	Modern.
Charles Henry Webster,	Clearwater,	Scientific.
William Dodsworth Willard,	Mankato,	Classical.

SUB-FRESHMAN CLASS, 54.

Antoinette Judson Abernethy,	Minneapolis,	Modern.
Frank Sherman Abernethy,	Minneapolis.	Scientific.
Francis Henry Adams,	Lake City,	Scientific.
Charles Henry Alden, Jr.,	Fort Snelling,	Scientific.
Earle Jay Babcock,	Minneapolis,	Scientific.
Addison Turner Baker	Minneapolis,	Scientific.
Rebecca Virginia Baker,	Minneapolis,	Modern.
Sibyl Belle Baker	Minneapolis,	Modern.
Charles Edward Castle,	Elk River,	Scientific.
Henry Rankin Chase,	Minneapolis,	Scientific.
William Whittelsey Cheney,	Minneapolis,	Classical.
Arthur Bliss Church,	Minneapolis,	Modern.
Wealthy Albreta Cook,	Cannon Falls,	Modern.
Peter Anthony Cosgrove,	Green Isle,	Modern.
Lana Mariah Countryman,	Minneapolis,	Scientific.
Edward Lincoln Cressy	Richfield,	Scientific.
William James Donahower,	St. Peter,	Modern.
Mattie Laura Elwell,	Minneapolis,	Modern.
Albert Ernest Fillmore,	Minneapolis,	Classical.
John Albert Folsom,	Minneapolis,	Scientific.
Florence Ellen Gideon,	Excelsior,	Modern.
ohn Paul Goode,	Marion,	Scientific.
lbert Graber,	Minneapolis,	Classical.
lla Alma Grimes,	Minneapolis,	Modern.
ary Agatha Grimes,	Minneapolis,	Modern.
ugene Hanscom,	Richfield,	Scientific.
illiam Harrison,	Cannon Falls,	Classical.
lia May Hendrix,	Elkhorn, Wis,	Scientific.

Charles William Jackson,	Minneapolis,	Scientific.
Frank DuMars Jones	Minneapolis,	Scientific.
Nellie Jordan,	Winnebago City,	Scientific.
Wesley Albert Kalmbach,	Ft. Howard, Wis.,	Scientific.
Herminia Koenig,	St. Peter,	Modern.
William Baker Ladue,	Salem, Oregon,	Classical.
Thomas Harmon Linton,	Minneapolis,	Scientific.
John Thomas Ludlum,	Minneapolis,	Scientific.
Walter Henry Lyon,	Jamestown, D. T.,	Classical.
Clara Heck McClary,	Minneapolis,	Scientific.
Jessie McMillen,	Minneapolis,	Modern.
Margaret Jane McOuat,	Oshawa,	Scientific.
Frances Marion D. McQuivey,	Minneapolis,	Classical.
Sumner Warren Matteson, Jr.,	Decorah, Ia.,	Scientific.
Alonzo Draper Meeds,	Stillwater,	Scientific.
Robert Leslie Moffett,	Minneapolis,	Scientific.
Oliver Johnson Niles,	Rochester,	Scientific.
Carl Christian Peterson,	Minneota,	Scientific.
Bertie Leverett Sacre,	Minneapolis,	Scientific.
Kate Norwood Smith,	Minneapolis,	Modern.
Lydia Kathrina Strohmeier,	Minneapolis,	Classical.
Clarissa Anna Thompson,	Minneapolis,	Modern.
John Lucius Torrens,	Oakland,	Scientific.
Sarah Louise Upton,	Minneapolis,	Modern.
Mary Gertrude VanValkenburg,	Minneapolis,	Modern.
Christopher Elisha Voge,	Crystal,	Scientific.

SPECIALS, 61.

Minnie Florence Abrams,	Mapleton.
John Alander,	East Union.
Ida Lulu Ames,	Palermo, Ill.
Christian Anderson,	Spring Valley.
Margaret Ellen Anderson,	Eden Prairie.
George Cutler Andrews,	Minneapolis.
Lucy Floyd Baker,	Minneapolis.
John Thomas Baxter,	Minneapolis.
Gustav Olsen Brohough,	Red Wing.
Harrison Hardy Brace,	Rochester, N. Y.
Tamson Estella Brown,	Le Sueur.

Robert Sewall Brown,	Minneapolis.
Emil Brzezinsky,	Minneapolis.
Louise Anne Cady, A,	Blue Earth City.
Clarence Stanley Coe,	Riverside, Iowa.
Virginia Coe,	Minneapolis.
Otis Lincoln Colburn,	Minneapolis.
Kate Bird Cross,	Minneapolis.
John Albert Dahl,	Minneapolis.
Charles Reuben Darling,	Wasioja.
Donald Davidson,	Glencoe, Canada.
Frank Walcott Ellis,	Clinton, Iowa.
Oscar Firkins, B. A., '84,	Minneapolis.
Flora Joy Frost,	Jackson.
Lucien Earl Fryberger,	Red Wing.
Isabel Gale,	Minneapolis.
John Calvin Gilman,	Wasioja.
Jacob Olsen Haughland,	Watson.
Charles Gilbert Hinds,	Shakopee.
Walter Benjamin Holmes,	Faribault.
John Blackstock Hawley,	Red Wing.
Alva Wilber Jones,	Wauseon, Ohio.
Julie Juvee,	Rothsay.
Patrick Kennedy,	Oshawa.
Ella Jane Leaming,	Crow River.
Erick Haldorson Loe,	Red Wing.
Horatio Shumway Lee,	Buffalo, N. Y.
Katharine Ellen Miller,	Minneapolis.
John Morris,	Bristol.
Alice Mott,	Faribault.
Jens Anderson Ness,	Red Wing.
Arthur T. Page,	Beloit, Wis.
Nora Pearson, A	Marshall.
Susan May Pillsbury,	Minneapolis.
Albert F. Pray,	Minneapolis.
Byron Christian Riblet,	Ordway, D. T.
Sarah Alice Sophia Rollit,	Minneapolis.
Frances Clinton Shenehon,	New York, N. Y.
Johannes Jensen Skördalsvold,	Minneapolis.
Ada Emily Smith,	Algona, Iowa.

Frank John Smith,	Spring Valley.
John Henry Spaulding, D. D. S.,	Minneapolis.
William Augustus Spaulding, D. D. S.,	Minneapolis.
Susan May Stearns,	Duluth.
Frank August Swanson,	Minneapolis.
Alice Taylor,	Minneapolis.
Frances Wilcox,	Minneapolis.
Orlando Blodgett Willcox, Jr.,	Sackets Hrbr, NY
Ima Caroline Winchell,	Minneapolis.
Edward Winterer,	Le Sueur.
Louis Peter Wolff,	Red Wing.

ARTISAN'S TRAINING SCHOOL.

A DIVISION—4.

Otto Munson,	Valley Creek.
Ray Overmeyer,	Minneapolis.
Edward Kintzing Pritchett,	Minneapolis.
Edward Howland Sampson,	Excelsior.

B DIVISION—2.

Charles Ellery Felt,	Minneapolis.
Frank Erven Reidhead,	Minneapolis.

C DIVISION—12.

Louis F. Becker,	Minneapolis.
C. E. Belden,	Minneapolis.
David William Brackett,	Minneapolis.
George Budds,	Minneapolis.
Frank Xavier Hall,	Minneapolis.
Arthur Lack,	Minneapolis.
Arthur Edgar Loring,	Minneapolis.
Edward David Owen,	Minneapolis.
Alexander Robertson,	Minneapolis.
John Henry Rumpf,	Minneapolis.
William Judson Smith.	Minneapolis.
David Lloyd Vivian,	Osceola, Mich.

D DIVISION—50.

Charles F. Barton,	Waukesha, Wis.
John W. Bashaw,	Minneapolis.
Willis F. Bradehan,	Minneapolis.
Fred C. Brittain,	Minneapolis.

W. L. Brooks,	Minneapolis.
James W. Casey,	Waverly Mills.
Victor S. Clark,	Minneapolis.
Sue M. Clark,	Omaha Nebr.
John Cronan	Minneapolis.
William Devereaux,	Minneapolis.
Charles E. Dickson,	Minneapolis.
Ira M. Dillman,	Columbus, Ind.
Axel Eddy,	Minneapolis.
Christopher Evenson,	Minneapolis.
Eugene Ganvereau,	Minneapolis.
Walter D. Guild,	Minneapolis.
John M. Hall,	Minneapolis.
Frank H. Hall,	Minneapolis.
William E. Hills,	Minneapolis.
William R. Holbrook,	Minneapolis.
Charles F. Howe,	Minneapolis.
Charles Holm,	Minneapolis.
Wilson Henry,	Minneapolis.
Thomas C. Hughes,	Minneapolis.
Otis L. Humphrey,	Minneapolis.
Axel E. Jacobson,	Perhtigs, Wis.
Fred O. Killgore,	Minneapolis.
George W. Laing,	Minneapolis.
Peter M. Lauritzen,	Minneapolis.
William Little,	Minneapolis.
George Loeh	St. Peter.
John H. Merriman,	Minneapolis.
Charles B, Moier,	Minneapolis.
Ore Michelet,	Minneapolis.
Thomas Naufft,	Halifax, N. S.
Benjamin Nihlsson,	Minneapolis.
Hans Merland,	Minneapolis.
William F. Plachte,	Minneapolis.
Andrew T. Ruddy,	Des Moines, Ia.
Alexander M. Robertson,	Minneapolis.
John H. Rumpf,	Minneapolis.
Henry Schroeder,	Minneapolis.
Charles B. Smith,	Racine, Wis.

William Thomas,	Minneapolis.
John E. Trevillyan,	Minneapolis.
Leo E. Varner,	Jordan.
Frank Van Amburgh,	Minneapolis.
Fred W. Williams,	Minneapolis.
Alonzo D. Williamson,	Minneapolis.
Adelbert A. Wyman,	Millbridge, Me.

SUMMARY—1884-5.

College or Department	Class		Gentlemen	Ladies	Totals
Graduate Students			9	8	17
Science, Literature, and the Arts	Senior		5	4	9
	Junior		11	9	20— 29
Mechanic Arts	Senior		3		3
	Special		4		4
	Artisans Training School	A	4		4
		B	2		2
		C	12		12
		D	50		50— 75
Agriculture	Junior		1		1
Collegiate Department	Sophomore		26	4	30
	Freshman		31	16	47
	Sub-Freshm		34	20	54
	Special		35	22	57—188
Totals			227	83	310

P.A.WEST.PHILA.

THE UNIVERSITY.

CAMPUS.

The University is situated in the city of Minneapolis, on the east side of the Mississippi river, about one mile below the Falls of St. Anthony, on an elevated bluff in full view of the same. The grounds are now about forty-five acres in extent, undulating in surface and well wooded with native trees, and by reason of the natural advantages of situation and contour, very attractive.

The experimental farm of the Agricultural College is situated on Como Avenue, about two miles distant.

BUILDINGS.

The general plan of the buildings contemplates a central academic building, and grouped around it, additional structures for the separate departments or colleges.

The legislature of 1881 appropriated the sum of $30,000 a year for six years for the erection and outfit of the following additional buildings: A farmhouse, a building for the college of mechanic arts, a military building, an astronomical observatory, a museum and a library.

THE MAIN OR ACADEMIC BUILDING.

This building is 186 feet in length and 90 feet in breadth, exclusive of porches, having three stories above the basement. The walls are of blue limestone and the roof of tin. The rooms, fifty-three in number, as well as all the corridors, are heated by an efficient steam apparatus, and are thoroughly ventilated. Water is supplied from the city mains, and there is a standpipe running from the basement through the roof, with hose attached on all the floors, for protection against fire. The assembly hall, in the third story, 87x55 feet and 24 feet high, will seat with comfort 700 people, and 1,200 can be accommodated.

THE AGRICULTURAL COLLEGE.

For a view of this building see College of Agriculture, *infra.*

This is the first of the special buildings for the separate colleges. It is of brick on a basement of blue stone, 146x54 feet. The central portion is two stories in height. The south wing, 56x37, is a plant house of double sash and glass. The north wing contains the chemical laboratory. There are class rooms for chemistry and agriculture, and private laboratories for the professors. A large room in the second story is occupied by the museums of technology and agriculture. A model farm-house and barn have been erected on the experimental farm.

THE MILITARY BUILDING.

This building was completed in the summer of 1884. It is the largest drill hall in the country, and is so constructed as to serve the additional purpose of a large assembly hall. It will seat with comfort five thousand people.

THE COLLEGE OF MECHANIC ARTS.

This building will be erected the coming summer.

LABORATORIES.

The Chemical Laboratory occupies six rooms in the Agricultural College. (1) The main students' laboratory, 22x45 feet. This contains eight tables, accommodating sixty-four workers, in two sections or reliefs. Each table has water, gas, sink, shelving for reagents, drawers and cupboards for apparatus—all of the most approved construction. (2) A room for certain special chemical operations, adjoining, 22x30 feet. (3) The apparatus room, provided with cases for storing apparatus, and tables for the balances. (4) The professor's private laboratory. (5) A room in the basement fitted up for assay and furnace work. (6) The lecture and recitation room on the second floor. The University is able to offer ample facilities for successful study and instruction in both general and analytical chemistry, and in the allied branches of study. Persons desiring chemical analyses should address the professor of chemistry.

The Physical Laboratory. The rooms in the main building devoted to the department of physics are so arranged and furnished that advanced students desiring to make a specialty of physics can have an opportunity to use the apparatus, and perform their own experiments.

MUSEUMS.

The General Museum comprises the collections of the geological and natural history survey of the State, augmented by purchases and donations. The specimens are contained, so far as they are ready for exhibition, in rooms 51 and 52 of the main university building. In the south room, No. 52, are the geological and mineralogical specimens, in cases suitably arranged about the room; the suite of typical Minnesota rocks and minerals being in the large case in the center of the room. Upwards of 4,700 entries and 12,000 specimens, including duplicates, indicate the volume of this department of the museum, embracing species not only from the State of Minnesota, but from all parts of the world. Among these is a complete series of the zinc and iron minerals and their associates, from Franklin, Ogdensburg, and Bergen Hill, N. J., and a collection of sixty-four meteoric stones and irons from different parts of the world.

In the wall cases of this room are displayed the collections of Rev. H. C. Hovey, D. D., generously deposited by him for inspection by the members of the University and the public. They include a large number of unique "cave specimens" gathered by their owner from the famous Mammoth, Luray, and Wyandot caves.

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The Museum is rapidly growing in value by the accumulations of the geological survey of the State, and is constantly used for the illustration of scientific instruction. The rooms are opened daily during the university year for the convenience and use of students and visitors.

Contributions and correspondence should be addressed to the curator, Prof. N. H. Winchell.

THE MUSEUM OF AGRICULTURE is designed to assist in illustrating the instruction in agriculture and horticulture. It comprises models of agricultural implements, seeds of grasses, grains and noxious weeds in jars; grasses and grains in the straw; drawings and lithographs of machines and animals; fruits preserved in alcohol; fertilizers and other articles of interest to the farmer. Contributions are respectfully requested, and should be addressed to Prof. Edward D. Porter.

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THE MUSEUM OF TECHNOLOGY.—A cabinet of specimens illustrating the products and processes of applied chemistry is being collected by the professor of chemistry, as opportunity offers. This collection will embrace fuel, ores, furnace products, texile materials, both raw and manufactured: dye-woods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woolen goods, earthenware, pottery, etc. A good beginning has already been made, and it is hoped that large additions will be obtained during the coming year. Contributions are respectfully solicited, for which due credit will be given. They should be addressed in care of Prof. James A. Dodge.

THE CLASSICAL MUSEUM, a beginning of which has been made, will comprise all *materia* that may illustrate classical geography, topography, chronology, mythology, geography, archæology, and art, such as plans of ancient cities, temples, battle-fields, camps, etc.; busts (original and plaster casts); coins and medals; specimens (original and plaster casts) of ancient sculpture, friezes, capitals, columns, etc.; of vases, etc.; books and plates of costumes, military weapons, armor, household and agricultural affairs, and naval illustrations, etc.; architecture; ancient books and manuscripts; specimens of inscriptions and implements used in writing, and in the arts. Contributions may be sent to Prof. Jabez Brooks, D. D.

THE LIBRARY.

The number of bound volumes has reached nearly 20,000, and additions are constantly being made. Besides the books purchased of booksellers, the following collections have been acquired:

1. The Robertson collection of 1,200 volumes, purchased of Col. D. A. Robertson, of St. Paul, formerly a professor in the University. This collection is rich in works on American history, Arctic travel and discovery, ethnography, and political economy.

2. The Campbell collection of 2,800 volumes, selected by Prof. G. Campbell in London, Berlin, Florence, and other cities in Europe. This embraces many French, German, and Italian works. The subjects most numerously represented are philology, philosophy and social science, general literature, history, and biography.

3. The Tappan collection, comprising 2,500 volumes from the library of the late Rev. H. P. Tappan, D. D., LL. D., ex-president of the University of Michigan. This collection contains choice and valuable editions of standard English authors, numerous works on philosophical subjects, and many reviews and works of reference.

4. The State Library collection, being the miscellaneous books of that library turned over to the University by an act of the legislature of 1877.

The miscellaneous purchases have been confined to encyclopedias, dictionaries, bibliographical material, and works of first necessity for the various departments of instruction. Among the public documents are to be found sets of the Smithsonian publications, the coast survey reports, the survey of the Pacific railroad, Schoolcraft's Indian tribes, United States geological surveys, patent office reports, etc.

The alphabetical lists of authors, printed from year to year, serve a good purpose as a catalogue of authors, and furnish the titles for the printed card catalogue. There is a catalogue of subjects called "Finding Lists" kept for sale at 25 cents per copy.

The library and reading room occupy rooms 18, 20, 22, 24 to 28 in the first story of the main building. The books are shelved according to a simple classification upon a so-called "elastic system" which allows additions indefinitely without disturbing the existing arrangement and numbering.

The library is open to everybody eight hours every day of the university year, except Sundays and holidays. During the vacation the library is open on Wednesday and Saturday evenings at 7:30 o'clock for the issue and receipt of books borrowed. Members of the University are allowed to borrow books for home reading, to be kept seventeen days; but works marked in the catalogue with a *(called "starred books"), comprising books of reference, illustrated works, and rare and costly books cannot be removed. These works, as well as all others, may be read and consulted in the

READING ROOM,

where a number of periodicals are to be found; among them the following:

QUARTERLIES.

Bibliotheca Sacra.
Journal of Speculative Philosophy.
Westminster Review.
Quarterly Review.
Edinburgh Review.
British Review.
Mind.
(Eng) Journal of Philology.
American Journal of Mathematics.

BI-MONTHLIES.

New Englander.
Education.
American Law Review.
American Antiquarian.
Chemical Journal.

MONTHLIES.

American Agriculturist.
American Miller.
Popular Science Monthly.
Library Journal.
Century.
Atlantic.
Harper's Monthly.
Van Nostrand's Engineering.
Contemporary Review.
North American Review.
Deutsche Revue.
Fortnightly Review.
Nineteenth Century.
American Journal of Science and Art.
American Naturalist.
Journal of Franklin Institute.
Monthly Reference Lists.
Magazine of Art.
Portfolio.
Catholic World.
American Chemical Journal.
Blackwood.
War Department Weather Report.
Literary News.
Canadian Entomologist.
Botanical Gazette.
Siderial Messenger.
Observatory.
Annals of Mathematics.
Gardener's Monthly.
Magazine of American History.
U. S. Postal Guide.

WEEKLIES.

Littell's Living Age.
Nation.
Scientific American and Supplement.
Nature.
Harper's Weekly.
Athenæum.
Chemical News.
Saturday Review.
Staats Tidning.
Le Canadien.
Revue Politique et Litteraire.
National Labor Tribune.
American Machinist.
American Architect.
National Journal of Education.
Christian Statesman.
Folkebladet.
Saturday Evening Spectator.
Sanitary Engineer.
Science.
Home Journal.
The Current.
Engineering.
Wochentliche Volkszeitung.

SEMI-WEEKLIES.

New York Tribune.
New York Evening Post.
Inter-Ocean.
Ueber Land und Meer.

DAILIES.

Minneapolis Tribune.
Minneapolis Evening Journal.

SEMI-MONTHLY.

Literary World.

DRAWING ROOM.

Room 45 in the main building, 47x30 feet, is furnished with drawing tables for the use of classes in geometrical and free-hand drawing. There are also cases and cabinets for holding drawings and drawing boards. A considerable collection of prints, drawings, and models for lessons and illustrations has been made.

WORK SHOPS.

The work shops of the college of mechanic arts are temporarily provided for in three rooms in the basement of the Agricultural College. (1) The vise shop, containing two benches with double sets of drawers, so that thirty-two students can be accommodated in two reliefs. This shop is now provided with ten vises and the necessary tools for giving thorough instruction and practice in filing and chipping. (2) The forge shop, which contains eight forges and and anvils, and all tools required for the usual manipulation of the blacksmith. This shop also contains a six horse-power engine and boiler for furnishing power; a Sturtevant pressure blower for providing blast, and an exhaust fan for removing smoke and dust. (3) The wood-working shop, which contains eight complete sets of hand tools, a band saw, and two circular saws, run by the engine in the forge shop.

TESTING ROOM.

The Olsen testing machine of 50,000 pounds capacity has been placed in a room in the basement of the main building, where the various tests of the strength of materials are made.

APPARATUS.

No attempt has been made at display, but great pains have been taken to procure for the various departments the essential instruments and materials for illustration. The outfit of the chemical laboratory is not inferior to that of any college laboratory in the country. The physical apparatus serves all present essential purposes. A full set of United States standard weights and measures has recently been supplied through the Coast Survey office. They are stored in Room 41, Main Building. Persons desiring to have weights and measures tested can apply to Professor Pike. For engineering instruments, see COLLEGE OF MECHANIC ARTS, *infra*.

The collection of PATENT OFFICE MODELS and Schrœder models for descriptive geometry are stored in substantial cases in room 45, Main Building.

FRUIT FARM ON MINNETONKA.

In the winter of 1878-9 the State Horticultural Society organized a movement intended to compliment and encourage in his further endeavors, Mr. Peter M. Gideon, of Excelsior, Hennepin county, the well-known discoverer of the Wealthy apple. The result was an appropriation by the legislature of $2,000 for the purchase of land, and of $1,000 per annum for the salary of a superintendent, the control being placed in the hands of the board of regents. By good fortune a piece of land of the most favorable situation and exposure, lying on the peninsula dividing the upper and lower lakes of Minnetonka, was secured. Mr. Gideon was appointed superintendent, and is carrying on promising experiments.

GENERAL INFORMATION.

ACCESS.

The University of Minnesota is accessible by means of all conveyances centering in the cities of Minneapolis and St. Paul. The present main entrance to the grounds is at the corner of Third street (or University avenue) and Fourteenth avenue Southeast. The eastern terminus of the street railways is one block distant; fare 5 cents.

HOW TO ENTER THE UNIVERSITY.

1. Report promptly for examination at the time and place announced and attend the sessions punctually, observing such directions as may be given.
2. At the hour appointed you will receive a numbered examination ticket. By this number you will be known to the examining professors.
3. Applicants holding certificates of the STATE HIGH SCHOOL BOARD for any branches, will deposit them with the registrar, and be excused from the examination in such branches.
4. So soon as the answers can be read and marked, a statement of the merit obtained in the several studies will be furnished to each examinee.
5. An application for admission may thereupon be filed by successful candidates with the registrar. A blank will be furnished for that purpose.

BOARDING.

THE UNIVERSITY HAS NO DORMITORIES. This is a matter both of necessity and policy; of necessity because the State has not furnished money to build dormitories; of policy, because it is thought better for the students to be distributed among the people of the university city, amenable to the common laws and sentiments of society. The public bounty stops at furnishing free instruction, leaving to private hands the providing of maintenance.

Three methods of boarding are practiced:

1. Boarding in families. Good board can be found at reasonable prices, ranging from $4.50 upwards.
2. Club boarding. The price of board has not exceeded $3.00 per week.
3. Self-boarding, by individuals, or more commonly, by small groups or colonies composed of members of the same family, or of neighboring families. Rooms are hired, and furniture, provisions and fuel brought from home. When well managed, this is an excellent and very economical mode of living. Two dollars per week to each member may be set down as the cost.

Persons desiring to secure boarding for young ladies are advised to correspond with Professor Maria L. Sanford, who will gladly assist in making arrangements if desired.

EMPLOYMENT.

THE UNIVERSITY CAN NOT PROMISE EMPLOYMENT to those who desire to earn their living. The few places it can offer being always in the hands of old students, new-comers cannnot expect to get them. The following advice, derived from the observations of several years, is offered to young persons of limited means who want an education:

(1) If possible learn a good trade or art before coming to the University. Your chance for work will be greatly increased, and you can get better wages. (2) Bring some money with you—fifty dollars at least—on which to live until you find work. (3) If you want work you must look for it; it will not come to you at first. Be active, resolute and enterprising. (4) If you have to "pay your way" through college, resolve to take time enough to do it well without ruining your health. It is not essential that you be graduated with any particular class.

EXPENSES.

The average necessary expenses of students boarding in families appear to be about $300; those of students boarding in clubs and otherwise, about $225.

INSTRUCTION IS FREE IN ALL DEPARTMENTS.

The only general university charge is the annual fee of $5.00 for incidental expenses. This fee must be paid before the student can join his classes, and no deduction is made for absence or late entrance. Laboratory charges depend upon the amount of materials used and breakages of apparatus.

Students provide their own books and stationery. The literary society expenses are moderate.

DAILY ROUTINE.

Each week-day except Monday is occupied with recitations, lectures, and exercises. The work begins at 8:40, A. M., and continues throughout the day. A general assembly of students and faculty is held each day at 10:40 A. M., at which there are brief and simple religious exercises.

DISCIPLINE.

The University presumes that every member intends to do his duty and to behave himself decently. Good order, courtesy, punctuality and attentiveness are established customs of the University, which the student body take pride in maintaining.

Students of the various departments or colleges are amenable to their respective faculties; but in all cases of offenses against peace and order committed by students of whatever department or college, the general faculty has exclusive jurisdiction.

The following by-law of the Board of Regents is in force:

> **"Whenever any faculty of the University is satisfied that any student is not fulfilling or is not likely to fulfil the purpose of his attendance upon the University, or is for any cause unfit to remain a member of the same, the president shall so inform his parent or gardian; and if, after a reasonable time allowed, the said student shall not have been withdrawn, he may be dismissed by order of the general faculty."**

STUDENTS' SOCIETIES.

The STUDENTS' CHRISTIAN ASSOCIATION. This society was formed by students for the purpose of mutual moral and spiritual improvement. Devotional meetings are held weekly, and students are cordially invited to attend its meetings and aid in its work. The constitution provides for including all and excluding none who sympathize with the object of the association and desire to share in its work and benefits. Permission to erect a building on the campus has been given, and the association has made considerable progress in raising the necessary funds. Any desired information in regard to the association may be obtained by addressing the president of the association at the University.

There are three LITERARY SOCIETIES recognized by the general faculty, which furnish excellent and much-prized opportunity for practice in extemporaneous speaking and parliamentary procedure.

The ATHLETIC ASSOCIATION is a University organization, having for its object the general physical culture of the student, and the encouragement of a proper spirit in favor of hearty, manly sports. The Monday before Commencement is the Annual Field Day of the Association.

ALUMNI ASSOCIATION.

This association was organized in 1875. All graduates of the existing colleges of the University are members. The members of the board of regents and of the general faculty are honorary members. There are the usual officers charged with the customary duties. An executive committee conducts business not otherwise provided for. The annual meeting is on the day preceding Commencement, at 3 o'clock P. M. The Alumni attending commonly dine together after the public exercises on commencement day.

OFFICERS FOR 1884–5.

MR. GEORGE S. GRIMES,	President
MISS ANNIE H. JEFFERSON,	Vice-President
MISS LETTIE M. CRAFTS,	Secretary
MR. JOHN WALDO PERKINS,	Treasurer
PROF. JOHN CORRIN HUTCHINSON,	Historian
ROBERT P. A. NIX,	Toast Master

GEOLOGICAL SURVEY.

The University is charged by law with the work of the geological and natural history survey of the state, under direction of the board of regents. This survey has now been in operation since 1872, but has been confined principally to the geological portion of the work. More lately the regents have also ordered the beginning of botanical collections with a view to the creation of a full herbarium of the flora of the state; and instituted systematic observations and reports on the birds of Minnesota. The professors of the University are selected by the regents for carrying on the various branches of the survey, and the general museum is the place of exhibition of the collections.

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COURSES OF STUDY AND DEGREES.

ACADEMICAL DEGREES.

No honorary degrees are conferred by this University.

I. THE COLLEGIATE DEPARTMENT offers three courses of study, called classical, scientific, and modern. The classical course has for its leading studies the Greek and Latin languages. The scientific course is characterized by a succession of elementary natural sciences. The modern course is distinguished by the prominence given to the modern languages. Students choose their courses at time of entrance, and do not change them except as allowed by vote of the general faculty.

At the close of the Sophomore year each student has his option whether to enter at once, with a fair preparation, one of the professional colleges, or to proceed with higher academical studies in the college of science, literature, and the arts.

No degrees are offered in this collegiate department, but merely a "final certificate" upon a completion of a course.

II. THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS presents likewise three courses of study:

1. A COURSE IN ARTS;
2. A COURSE IN SCIENCE;
3. A COURSE IN LITERATURE.

These lead, respectively, to the degrees of BACHELOR OF ARTS, BACHELOR OF SCIENCE, BACHELOR OF LITERATURE.

III. THE COLLEGE OF MECHANICAL ARTS offers three advanced or university courses, based on the scientific course of the collegiate department, which lead to appropriate baccalaureate degrees:

1. A COURSE OF CIVIL ENGINEERING;
2. A COURSE IN MECHANICAL ENGINEERING;
3. A COURSE IN ARCHITECTURE.

IV. THE COLLEGE OF AGRICULTURE offers an advanced or university course, based on the scientific course of the collegiate department, leading to the degree of BACHELOR OF AGRICULTURE. For the other courses in agriculture, see COLLEGE OF AGRICULTURE, *infra.*

V. THE COLLEGE OF MEDICINE in which no instruction is given, but in which degrees of BACHELOR OF MEDICINE and DOCTOR OF MEDICINE are conferred upon examination and defense of thesis. See COLLEGE OF MEDICINE, *infra.*

The following statements should be carefully examined by students and applicants in connection with the courses of study as tabulated further on:

I. MATHEMATICS.

PROFESSOR DOWNEY.

Mathematics, on account of its wide application in practical affairs, as well as its great value in cultivating accuracy of statement, logical reasoning, and habits of close mental application, occupies a prominent place in all the courses of study.

Admission to the Sub-Freshman class requires a good knowledge of arithmetic and elementary algebra. Admission to the Freshman class requires, in addition to these, plane geometry, solid geometry, and the higher algebra of the Sub-Freshman year, as indicated below.

The branches are the same for all courses until the last term of the Sophomore year, and, beginning with the Sub-Freshman year, consist of plane geometry, solid geometry, higher algebra, plane and spherical trigometry, and the elements of conic sections.

The aim is so to direct the work of this elementary course as to prepare the student to enter successfully upon the study of the higher mathematics, and upon the applications of mathematics in mechanics, astronomy, surveying, and engineeing.

In geometry the student is required to furnish demonstrations for many theorems not demonstrated in the text book, and to solve practical problems dependent upon geometrical principles.

The Sub-Freshman work in higher algebra embraces factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, radicals, simple equations, proportion, progression, and variation. The Freshman work in higher algebra embraces quadratic eqations, inequalities, differentiation of algebraic and logarithmic functions, development of functions (by the binomial formula, by indeterminate co-efficients, and by Taylor's formula), logarithms, and higher equations (including Sturm's Theorem and Horner's Method of Approximation).

The student is impressed with the importance of trigonometry by having his attention called to its numerous elegant applications, and is made familiar with its methods and the use of its tables by being required to solve a large number of practical problems.

General or co-ordinate geometry is studied the first term with special reference to the conic sections, and the effort is to dwell upon such features as will make the work valuable to all, whether they pursue the study farther or not, and prepare them to understand the treatment of these curves in the subsequent course in astronomy.

Of the remaining mathematics, general geometry, differential calculus, and integral calculus are required in the courses of civil engineering, mechanical engineering, and architecture, and elective in the other courses, and quaternions is elective in all courses.

General geometry is studied during a second term with reference, not only to the conic sections, but to loci generated according to any law. Much attention is given to producing equations of loci whose law of development is known, and to constructing and discussing such equations. The conic sections are still further treated, both by rectilinear and polar co-ordinates. After acquiring facility in the transformation of co-ordinates, the student investigates the properties of plane loci by means of their equations.

In calculus the text book used is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed. One term is given to the differential calculus and its applications in the development of functions, testing of functions for maxima and minima, and treating of tangents, sub-tangents, normals, sub-normals, direction and rate curvature, evolutes and envelopes.

One term is given to the integral calculus and its applications in rectification of curves, quadrature of plane surfaces, quadrature of surfaces of revolution, cubature of volumes of revolution, and to deducing equtions of curves. One term is given to quaternions, the text books being Hardy's and Kelland and Tait's.

II. ASTRONOMY.

PROFESSOR DOWNEY.

The course in astronomy extends through one term of the Sophomore year and two terms of the Senior year.

Descriptive astronomy is required in all coures three times a week in the first term of the Sophomore year, and is elective in all courses in the first term of the Senior year. It does not draw so largely from mathematics as does practical astronomy, but aims to give such information concerning the heavenly bodies and the laws by which they are governed as must be secured by every one who aspires to the position of a liberal education. The student learns the methods of determining the figure, size, density, and weight of the earth; the dimensions, distances, motions, physical character, and telesopic appearance of the bodies constituting the solar system; the nature of comets and meteors; the causes of many of the phenomena of the heavens; and the methods by which our knowledge of the fixed stars and nebulæ has been recently so much augmented. He thus obtains an enlarged conception of the universe and its Great Author. The text book work is supplemented by lectures, especially upon the history of the science and upon recent astronomical discoveries and theories.

Practical astronomy, one term, is required in the courses of civil engineering, mechanical engineering, and architecture, and elective in all other courses. The work embraces the theory and use of instruments, the use of the Ephemeris and Nautical Almanac, the various methods of determining time, latitude, longitude, methods of obtaining the parallax and position of celestial bodies, and of computing eclipses. The student is required to compute several eclipses before the time of their occurrence.

III. CHEMISTRY.

PROFESSOR DODGE.

During the first term of the Sub-Freshman year the students in the scientific course are required to take elementary general chemistry. This work covers the non-metallic elements and their compounds, including a few compounds of carbon, and corresponds nearly with the first fourteen chapters of Eliot and Storer's Elementary Manual of Chemistry. The study is pursued in a practical manner and comprises laboratory exercises, lectures, and recitations.

In the Freshman year the scientific students continue general chemistry, attending mainly to the chemistry of the metals. The metals and their salts are exhibited and their preparation and properties demonstrated and described in the lecture and recitation room, while the students spend a part of the allotted number of hours of their term's work in the laboratory testing the action of the various reagents as applied to the metals and their compounds. In this way they make preparation for the pursuit of analytical chemistry in the Junior and Senior years.

In the first term of the Sophomore year organic chemistry is studied in a manner in general similar to the above, but with a suitable amount of attention to the theoretical matter involved in this branch of the subject. In the second term of the Sophomore year technological chemistry, or chemistry as applied in the arts and manufactures, is taken up, chiefly in lectures, with illustrations in the way of specimens and experiments. This term's chemical work is limited to three days per week.

The classical and modern students take in the third term of the Freshman year a course covering most of the ground of elementary chemistry as presented in the shorter text books.

Students in all courses can elect analytical chemistry during the whole or a part of the Junior and Senior years. In the second term of the Junior year a course of lectures on the history and theory of chemistry is assigned for two days per week, while three days are given to analytical chemistry.

The chemical laboratory is fitted up in the best manner, with apparatus and fixtures of the most approved construction. It is designed to furnish instruction in general chemistry to all students in the scientific course of the collegiate department, and in qualitative and quantitative analysis and special research to all students of whatever department or college, who may desire and be entitled to such opportunities.

No charges are made for instruction, and only such charges for apparatus and chemicals as will cover actual cost to the institution. The charges for ordinary chemicals and apparatus will not exceed ten dollars per term. All glassware and other apparatus are charged to the student at cost. The glassware that is uninjured is received back at cost; other articles are received back under special regulations, generally at a discount of twenty per cent. The cost of apparatus will vary from two to five dollars per term, according to the care exercised by the student. To cover these expenses, students in analytical chemistry are required to deposit during the first week in each term, with the professor of chemistry, the sum of ten dollars, the balance of which, after deducting the charges mentioned, is delivered to the student at the end of the term.

Scientific students desiring to prepare for the study of medicine are advised to take the scientific course with Latin, electing French in the Sophomore year, German in the Junior, and analytical chemistry in a part of the Junior and Senior years.

Students desiring an extended course in chemistry are advised to take the scientific course with German, French in the Sophomore year, and analytical chemistry in the Junior and Senior years.

A special course may be arranged for students preparing for medicine, consisting of one term of qualitative analysis, followed by toxicology and the elements of physiological chemistry, and the preparation of vegetable and animal pharmaceutical products. A collection of specimen drugs for illustrating this branch of study, has been made.

A room in the laboratory is fitted up for the study of assaying, and this branch may be taken up with elective analytical chemistry.

IV. PHYSICS.

PROFESSOR PIKE.

A thorough knowledge of the elements of natural philosophy is expected of all students on entrance.

Scientific students of the Freshman class take molecular physics during the second and third terms. Classical and modern students go over a general course in physics in the first term of the Sophomore year.

The apparatus of this department having received a number of additions during the last year, is now used by the students themselves in solving various physical problems as well as by the instructor in illustrating principles.

In the first term junior, mechanics is required of all students in the scientific course, and is elective to others. In the second term of the Senior year engineering students are required and others are allowed to pursue an advanced course of study in the physical laboratory, making their own experiments and constructing or adapting their own apparatus in the workshop.

The department of physics for the coming year will be in charge of Mr. Frederick S. Jones, a graduate of Yale College.

V. BOTANY.

PROFESSOR HALL.

The students of the classical and modern courses are required to take botany in the third term of freshman year. The text book used is Gray's Lessons and Manual. Laboratory work with the microscope accompanies the lessons in an elementary course in structural botany. Attention is also given to systematic botany.

In the third term, sub-freshman year, the scientific students take substantially the same course as is indicated above for the classical and modern courses.

In the third term, freshman year, an advanced course in botany is given to the scientific students. Its object is to give a more thorough knowledge of structural and physiological botany, and more skill in plant analysis. Economic botany is also taken up, and laboratory work, two hours daily with the microscope, familiarizes the student with vegetable anatomy. The instruction is made as practical as posible.

In the college of agriculture provision is made for a special course in botany, with reference to the wants of students expecting to pursue farming.

VI. ZOOLOGY.

MR. NACHTRIEB.

1. GENERAL BIOLOGY.—The course in general biology extends through two terms in the Sophomore year of the scientific course, and is required. The course consists of lectures and laboratory work. The first few weeks are devoted to general plant morphology and physiology, and the rest of the time is devoted to general zoology. The student makes a careful study of the chief divisions of the invertebrates, (viz: the protozoans, coelenterates, echinoderms, worms, crustaceans and insects, and mollusks), and dissects several vertebrates. Structural affinities, the ways and means by which the various functions of life are carried on, and the life history (embryology) of typical forms are dwelt upon.

The course pursued and the methods used are, irrespective of the the great educational value of the study, such that the student who desires the elements of biology as the basis for a professional life, or who desires to pursue his study in this fascinating field of natural history for his own recreation and edification, will get a good starting point from which to advance.

A constantly increasing collection of specimens is used to illustrate the different subjects as they are taken up in the lectures.

2. ANIMAL PHYSIOLOGY AND HISTOLOGY.—In the Junior year animal physiology and histology are offered as an elective extending through two terms. The course consists of lectures, demonstrations, and laboratory work. The student studies the minute anatomy and microscopical structure of the various organs in connection with the lectures on the functions of the organs, and is required to make some fundamental experiments.

3. VERTEBRATE ANATOMY.—This course, as is also the one in physiology, is advanced work, and consists of taking lectures and making dissections.

VII. MINERALOGY AND GEOLOGY.

PROFESSOR HALL.

1. MINERALOGY.—The Junior class takes up mineralogy in the winter term. This is a required subject for the scientifics, and an elective one for the classicals and moderns. There is a lecture daily, and an equal amount of time is allotted each week to laboratory work.

The aim of the term's work is to give the student a knowledge of the principles of crystallography, and make him familiar with the physical characters and composition of the common minerals and rocks. As an aid in attaining these results, the laboratory work is important. This consists in a study of the most frequently occuring crystal forms from models and a good working collection of minerals, accompanying a course in qualitative blowpipe analysis.

2. GEOLOGY.—In the Senior year there is a course of general geology. The effort is made to adapt the course to the wants of students who have but the limited time of a single term to devote to the subject.

The aim here is to bring out the succession of leading events in the geological history of the earth, in a series of recitations and lectures in which statements of theories will be so introdued that they will show something of the historical development of the science.

In the following term a series of lectures on economic geology is offered. The course consists of discussions of the relations of geology to mining, and the origin and position of some of the most remarkable deposits of native elements and ores; to architecture, as in building materials, ornamental stones, &c.; and in the formation and constitution of soils.

The student of the science of geology in the University is furnished throughout with such aid as can come from a good supply of maps, models, specimens, and a Marcy's sciopticon, with a suite of geological and mineralogical slides. By means of the constantly increasing collections gathered in the general museum of the University, specimens of all the great formations as they appear in different localities, can be compared, and their resemblances and differences brought before the student. A series of Professor Ward's casts of fossils is in constant use in the study of historical geology.

Excursions to localities in the vicinity where the various sedimentary and igneous rocks of the State are exposed, give the students instruction of a practical character, and an outline of the methods and practices of the field geologist.

A system of exchange has been instituted, and is being extended, by which the value of the museum to students and all others is being greatly increased. Correspondence and contributions, if of interest to science and of value to students, are solicited, and may be addressed to the professor in charge.

VIII. ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR MACLEAN.

The wide and increasing interest in English as an old as well as a new tongue demands a thorough course of study. The language affords an opportunity for scientific discipline no less valuable than the broad culture its literature has always offered.

The mother-tongue must be studied practically as well as theoretically. It might well be the aim of an education that that tongue in which we think, pursue most of our studies, and must do business should be *understood* and correctly used.

The course, therefore, in English is linked on the one hand to the training in the lower schools, and on the other hand to the philological and critical work in the graduate course of the University, and the life-long literary studies of the alumnus.

The training in "language" and the "science of language," in the preparatory schools, cannot receive too much attention, for candidates for admission are often deficient in the rudiments of an English education. For terms of admission see under "Collegiate Department." Let it be noted that after this year themes upon certain English or American classics will be required. It is not designed that the preparatory schools shall attempt extended instruction in English literature, but that they shall aid to create a taste for good literature at the most important period in the youth's life.

The undergraduate course in the University is arranged progressively and according to the historical development. The science of the language—the strictly linguistic work—ends the with Sophomore year. The literary and critical study is presented to the upper classes. The work of specialists in philology, or in philosophical criticism and studies, will be offered in the graduate course.

In the Sub-Freshman year the Latin and Romance elements and etymologies will be taken up, with specimens of the literature. In the Freshman year the Anglo-Saxon (Old and Middle English) elements will be pursued in the same manner. Thus, the foundation will be laid for the history of the language in the Sophomore year, and the study of the English of the old masters, *e. g.;* Chaucer, Shakspere, and Milton. Students of the classical, and of the scientific and modern courses with Latin, may elect Anglo-Saxon at the beginning of the Junior year.

In the Junior and Senior years the work is designed for the students in all courses. In the third term, Junior year, all students are required to take the history of English literature. In the first term, Senior year, the history of American literature is an elective study, with lectures on oratory by the president. In the third term, Junior year, a course of lectures is given, to such as may elect, on the higher criticism of Shakspere by the president, and on the philosophy of literature by the professor.

The success of the "seminaries" in connection with the history of English and American literature during the past year, warrants the professor in hoping to continue them. The efficiency of the department will be increased, during this year, by the addition to the library of texts and reprints of rare authors.

SUB-FRESHMAN CLASS.

1st Term—Latin elements, with the study of Latin Grammar, and exercises in writing and conversation.

2d Term—Latin elements, with selections from Latin Reader, with special reference to vocabulary and the structure of sentences; exercises in writing and conversation continued.

3d Term—English etymologies, of Latin and later Romance origin, illustrated by selections from Bacon, Dr. Johnson and scientific text-books.

FRESHMAN CLASS.

1st Term—Old English (Anglo-Saxon) Grammar, and prose masterpieces.

2d Term—Old and Middle English poetry.

SOPHOMORE CLASS.

1st Term—History of the English language, with Chaucer.

2d Term—The English of Shakspere (Rolfe), with Abbott's Shaksperean Grammar; English versification.

3d Term—Milton's Paradise Lost, and minor poems, studied with reference to diction, derivation of words, figurative language, classical allusions, etc.; exercises in writing.

JUNIOR CLASS.

3d Term—History of English literature (lectures), with the reading of authors.

SENIOR CLASS.

1st Term—Lectures on oratory by the president, and on the history of American literature by the professor.
3d Term—Lectures on the higher criticism of Shakspere by the president, and on the philosophy of literature by the professor.

IX. GERMAN LANGUAGE AND LITERATURE.

PROFESSOR MOORE.

German is required of all students in tne modern course. Those of the scientific course are free to commence at the beginning of the Sub-Freshman year. Students of the classical and scientific courses may commence German in the Junior year, and continue the same throughout the Senior year.

Students intending to graduate in the college of mechanic arts, desiring to pursue German, must commence it in the Sub-Freshman year, as their time is fully occupied with professional studies in the Junior and Senior years.

First Year (*Sub Freshman class*).

1st Term—Macmillan's German course, with blackboard exercises in translating English into German.
2d Term—Boisen's German Prose book (54 pages), and Whitney's German Grammar (144 pages, coarse print only), with oral and blackboard exercises.
3d Term—Boisen's German Prose book (102 pages), and Whitney's German Grammar (coarse print only), with oral and blackboard exercises.

Second Year (*Freshman class*).

1st Term—Schiller's Egmont and Siege of Antwerp, with a review of the complete grammar.
2d Term—Wagner's German historical ballads, with German history and geography.
3d Term—Lessing's Minna von Barnhelm, and German composition.

Third Year (*Junior class*).

1st Term—Schiller's Wilhelm Tell and Gœthe's Faust, first part.
2d Term—Lessing's Laocoon and Nathan der Weise.
3d Term—Dutsche Lyrik and history of German literature; lectures.

The objects aimed at in the above course of study are: (1) in the earlier stages, by means of oral and written exercises, to teach the student how to express himself with some degree of facility in German, on topics of every day life; (2) a systematic study of German grammar; (3) a critical reading of some of the masterpieces of German literature, with collateral instruction and research in geography, history, mythology, biography of the authors, etc.

X. FRENCH LANGUAGE AND LITERATURE.

PROFESSOR BENTON.

French is required of all students in the modern course, in the Sophomore year of the Collegiate Department, and is an option for the other courses. French is offered as an elective in the Senior year of all the colleges of the University. Classical and scientific students, who have not previously had French, can begin it in the Senior year. The course during the past year has been as follows:

SOPHOMORES.

1st Term—Bocher's Otto's French Grammar and Reader.

2d Term—Bocher's Otto's course, continued; exercises and conversations.

3d Term—Bocher's coursecompleted; Fenelon's Telemaque; Scribe's Doigts de Fee; compositions, etc.

SENIORS.

1st Term—Racine's Andromaque; Corneille's Cinna; Moliere's Tartuffe and Misanthrope; Pylodet's Litterature Francaise Classique, or French literature during the Seventeenth century.

2d Term—Taine's Philosophie de l'Art en grece, and L'I'deal dans l'Art; Tableaux de la Revolution Francaise, compiled from French historians by Professors Crane and Brun. Lectures given in the French language, with notes and reports by the class, on French literature during the Eighteenth century.

3d Term—Cinq Mars, by A. De Vigny, a historic novel of the time of Richelieu; V. Hugo's Hernani; Le Dernier des Abencerages, by Chateaubrand; Bonnefon Ecrivains modernes de la France; lessons in Idiomatic French.

So far as the progress of the classes will allow the conversational method is used in the class. The words already learned are framed into questions and answers. The object aimed at is to give the students an acquaintance with the literature and history of the French people through the medium of their own language.

XI. SCANDINAVIAN LANGUAGES AND LITERATURES.

PROFESSOR BREDA.

In this new department no definite plan for the instruction has, as yet, been formed, but the course of instruction will be shaped so as to meet the wants of the students applying. There will be a course of instruction for those who have no previous knowledge of these languages, and another to meet the wants of students of Scandinavian descent wishing to obtain greater proficiency in speaking and writing these languages. A course of lectures will be given on the history of Danish, Norwegian, and Swedish literature.

XII. LATIN LANGUAGE AND LITERATURE.

PROFESSOR BROOKS *in charge.*

The requirements for admission to the Freshman class are:

1. Latin Grammar—Harkness' revised edition, or Allen & Greenough's, with Reader; Harkness' or Jones' recommended.
2. Composition—Harkness' Part II. or an equivalent.
3. Reading—Three books of Cæsar's Commentaries, with syntax; geography of Gaul; life of Cæsar, and history of his times; four orations of Cicero, with syntax, and history of the Catalinian conspiracy; four books of Virgil, with syntax; prosody; mythology: physical and political geography of Italy, with an outline of Roman history until the 2d Punic war.

The Freshman Latin is Livy, and Horace (begun), with Roman history, and thorough review of syntax.

The Sophomores read Horace (Odes, Satires, and Ars Poetica), and Tacitus. In connection with Horace the history of Roman literature is pursued, and with Tacitus the history of Rome under the emperors.

The Seniors have oratory and philosophy.

The Roman method of pronunciation is followed.

VOWELS.

Sound of the long vowels—*a* as in *father; e* as in *prey; i* as in *machine; o* as in *no; u* as in *pool; y* as the French *u*, or the *i* above.

Sound of the short vowels same as above but shortened.

The long and short vowels are identical in quality, differing only in quantity.

DIPHTHONGS.

Give the constituent vowels their proper sounds, and pronounce them in their order as rapidly as possible, as:

ai and *ae*, like the English adverb *aye* (yes); *ou* like *ow* in *owl*, or as in German *Haus; eu* nearly as in *feud; ei* nearly as *feint*, putting the stress on the last vowel; *oi* nearly as *oy* in *joy; oe* as *o-eh; u* in *ua, ue, ui,* etc., as the English *w*.

CONSONANTS.

c is always hard, as *k; g* always hard, as in *give; j* as *y* in *year;* v approximate to the English *w; r* with a slight trill, as *per* in *perry; s* always sharp, as in *this; t* always simple, not as *sh; x* always as *ks; ng* as in *anger; nc* as in *rancor; nq* as in *banquet; qu* as in *queen; ch* like *k; th* as in *then; ph* as *f;* the other consonants as they are in English.

The full course in Latin is offered to scientific students, as such students can take French when Seniors if they desire to do so.

XIII. GREEK LANGUAGE AND LITERATURE.

PROFESSOR BROOKS.

Greek is begun in the Sub-Freshman year, without imposing any conditions upon the candidates. The studies in the course in Greek are as follows:

SUB-FRESHMAN CLASS.

1. AUTHORS.—Hadley's and Goodwin's Grammars, with appropriate Lesson Books; Xenophon's Anabasis, 3 books.
2. COMPOSITION.—The exercises are based upon the text.
3. COLLATERALS.—(To be recited), Smith's History of Greece, the Introduction, and Chapters 6 and 7, Book II.; (to be read), Smith's History, Book III., and Chapter 36, Book V.

The acquisition of a thorough and ready knowledge of Greek Grammar—the vocal elements, elision, syllabication, euphony, quantity, accentuation, proclitics, enclitics, inflection, the verbal elements, the principal parts of the irregular verbs, the formation and composition of words, and syntax—is the aim of the work in the Sub-Freshman year, and is insisted upon as essential to an admittance to the Freshman class. It is a more important acquisition, in this early stage of Greek study, than a mere, though fluent, reading of the amount of Greek specified, and if it is not made here, generally, it never will be. It lays a solid foundation for the intelligent, and also for the rapid reading of authors, and makes room for the study of the history, chronology, mythology, antiquities, etc., that stand connected with the authors read, by relieving the instructor from the necessity of continually drilling his class in routine parsing. Of grammatical parsing, it may be said, that it is an exercise which, however necessary when used in proper measure, and at the beginning of a course of instruction, contributes, when confined as it usually is to mere technicalities, nothing to a practical acquaintance with the language; and when continued, as author after author is read, becomes a positive hindrance to the acquisition of the larger and better knowledge of its literature.

Conversation exercises are prepared by the department, and used with very satisfactory results. Translation, at sight, of selected passages, is also practiced.

FRESHMAN CLASS.

1. AUTHORS.—Xenophon's Memorabilia; Xenophon's Symposium and Hellenica, or Cyropædia; Demosthenes' Olynthiacs and Phillipics, or De Corona.*

2. COMPOSITION.—Exercises based upon the authors read.

3. COLLATERALS.—(To be recited) with Xenophon, Smith's History; Sections 8-15, inclusive, Chapter 35, Book IV.; (to be read), Grote's History, Chapter 68; (to be recited) with Demosthenes, Smith's History, Chapter 42 and 46, and Sections 2, 3, 4, Chapter 48, Book VI.: (to be read), Smith's History, Books IV., V. and VI.; Grotes History, Chapters 86-90, inclusive, and 95; Hermann's Political Antiquities of Greece; Plutarch's Lives (Demosthenes).

SOPHOMORE CLASS.

I. AUTHORS.—One tragedy, Æschylus' Promethus or Agamemnon, or Sophocles' Antigone, or Ædipus Tyrannus; Plato's Apology, Crito and Phædo, or Gorgias.

II. ESSAYS.—*Three* on the tragedy, to-wit: (if Prometheus be read.)

1. *An analysis* of the tragedy.

2. *Quotations* from other literatures suggested by and illustrative of passages found in the tragedy.

3. *Epithets* of Zeus, Prometheus, and the place of his punishment defined and classified.

And *three* on Plato, to-wit:

1. *An analysis* of the apology, embracing the court, the judges, the accusers, the indictment, the order of procedure, Socrates' method of defense, and the order of argumentation.

2. *A sketch* of Socrates, his times, character, etc.; discussion of the daimonion, and the adequacy of his defense.

3. *A disquisition* on the sophists, and Socrates' relation to them.

III. COLLATERALS.—(To be recited) with the tragedy, Smith's History, Sections 1 to 7, inclusive, Chapter 35, Book IV.; (to be read), Donaldson's Theatre, Blackie's Horæ Hellenicæ (article on Prometheus Bound); (to be recited) with Plato, Smith's History, Sections 5 to 10, inclusive, Chapter 48, Book VI.; and Sections 10 to 15, inclusive, Chapter 35, Book IV.; (to be read), Grote's History, Chapters 69 and 68, Blackie's Wise Men of Greece, Blackie's Four Phases of Morals (article on Socrates).

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*Lysias and Isocrates, with appropriate reading, will be interchanged with Demosthenes.

JUNIOR CLASS.

1. READING.—Homer's Iliad or Odyssey.
2. COLLATERALS.—(To be read), Grote's History, Chapters 15, 19-21, inclusive, Mure's History of Grecian Literature, Book II; Blackie's Horæ Hellenicæ (articles on Theology of Homer, and interpretation of Myths in Grecian Mythology).

MISCELLANY.

Attic Greek is studied connectedly to the end of the Sophomore year; the older dialects in the Junior year. The amount of collateral reading can be extended according to the time and tastes of the students; that given above is required to be read. Lectures are given on the authors read as occasion may demand. Greek is pronounced according to the accents, and with the so called continental (modified somewhat) sounds of the vowels and diphthongs. The following are the general principles and methods of work in the department: in translation, the radical meaning of words is to be learned, but the precise signification in the passage rendered is to be given; the thing to be done in translating an author is to give his exact meaning in the best idiomatic, grammatical English; facts, allusions, tropes, history, chronology, mythology, topography, customs, arts, laws, gramatical forms and elements, etymologies and composition of words are to be attended to. Translation of English into Greek is based upon the author read. So far as the author himself is concerned, among the things to be noted are: the chief acts of the authors life; the contemporary history and political condition of the country, and the author's relation to them; the character of the people; and the expression and logical scope of his thoughts, and the wisdom, etc., of his views.

XIV. MENTAL AND MORAL PHILOSOPHY.

MR. PEEBLES.

The course in Philosophy includes:

I. Logic, which is elective for all the Juniors in the third term. The course includes:—(a) formal logic, comprising the laws of discursive thought according to both the Aristotelian and modern forms; (b) applied logic, treating of the methods of application in scientific investigation by induction and deduction. Prominence will be given to oral instruction and practical exercises.

II. Psychology, which is elective for the Juniors in the second term. The course is given In lectures, and some of the topics discussed are: body and mind; sense-perception; association; self-consciousness; the mental faculties, and the relation of language to thought. One-third of the time is devoted to recitations, discussions, and reviews.

III. The history of philosophy, which is open to the Seniors in the first term. The course is given in lectures, and embraces a historical exposition of ancient and modern philosophy. The principles of the leading philosophers are expounded, and the historical relations of the succeeding systems are unfolded. The lectures are accompanied with recitations, discussions, and reviews.

IV. Moral philosophy, which is required in the second term of the Senior year. The course is given in lectures, and embraces, (1) a discussion of the history of ethics, ancient and modern; (2) an exposition of the principles of theoretical ethics with their appliance to actual conditions. One-third of the time is given to recitations, discussions, and reviews.

V. Natural theology, which is elective in the third term of the Senior year. The course occupies two hours a week, and is given in lectures. It embraces a discussion of the speculative basis of theism, and a review of the evidence of God's existence, derivable from the constitution of nature and man.

XV. HISTORY.

MR. PEEBLES.

Applicants for admission are examined in the history of the United States, and in the outlines of general history. The examination will be founded on Swinton's condensed history of the United States, and Swinton's outlines of general history, or Freeman's general sketch, or equivalents.

The course in History includes:

I. SUB-FRESHMAN CLASS.—Ancient history, the first term, required, three times a week. Entrance examination in ancient history will be founded on Schmidt's, Rawlinson's, or Thalheimer's manuals.

II. FRESHMAN CLASS.—Mediæval history, the second term, required, twice a week.

III. SOPHOMORE CLASS.—Modern history, third term, required, twice a week.

In the historical course text-book instruction is combined with topical discussion and outside research.

XVI. POLITICAL SCIENCE, ETC.

PROFESSOR FOLWELL.

Political economy and national economy are taught to the Seniors during ten weeks in the third term by dictated and conversational lectures. These subjects are required of all students of the college of science, literature, and the arts, and are elective to those of other colleges. The library is well supplied with standard authors on political and social science.

In political economy the aim of the instructor is to present clearly and fairly the history of the science, and to thoroughly inculcate established principles. On disputed topics the conflicting views are brought out with all possible impartiality.

National economy is briefly treated at the close of the course, the more prominent topics being, taxation, national banking, protection, public education, immigration, transportation.

Civil government is an elective for all Seniors through the second term. The principal chapters of De Tocqueville's Democracy in America are gone over by way of introduction. The constitutions of the United States and of Minnesota are critically read and commented upon, and the leading titles of legislation discussed. City, county, and township organization and administration are briefly treated.

In international law a course of ten lectures is given to the Seniors electing the subject in the second term.

The history of civilization attached to this department is an elective to all Juniors three times a week in the first term. The text-book is Guizot, but the students collect matter from numerous books of reference.

The subject of comparative philology, lately attached to this department, is an elective study for Juniors of all departments, twice a week in the first term. The course of lectures embraces a general treatment of the following topics: history of philology, classification of languages, origin and development of language, mechanism of speech and hearing, written language.

The work of graduate students is conducted on the "seminary" plan of the foreign universities, the particular subjects being selected by individuals, or groups, under advice of the professor.

XVII. RHETORIC AND ELOCUTION.

PROFESSOR SANFORD.

COLLEGIATE DEPARTMENT.

The following table shows the distribution of the work:

CLASSES.	I. TERM.	II. TERM.	III. TERM.
SUB-FRESHMAN.	Compositions.	Elocution.	....
FRESHMAN.	....	Elocution.	Compositions.
SOPHOMORE.	Elocution.	Elocution.	Orations.

The work in elocution comprises class drill and declamation with individual training. In the Freshman and Sophomore classes, students are encouraged to present original pieces for declamation. The aim is to give to students a style manly, direct, and clear; to avoid exaggeration and sham; and to enable them to read or speak with simplicity and grace.

In composition, weekly exercises are required upon subjects assigned. It is intended by constant practice to give the students ease and readiness in writing, and by the the subjects selected to accustom them to think, and express their thoughts forcibly and correctly upon such topics as educated people need to handle. In the third term of the Sophomore year three orations are required, of which one, at least, must be presented before the class.

All students of the Sophomore class take rhetoric five times a week during the second term. In this study the aim is not so much to teach the rules and formulus of a text-book, as to acquaint the pupil with the beauty and strength of our English tongue when correctly used; by the study of the best authors and constant practice under criticism, to make familiar the essentials of vigorous and effective writing and speaking.

UNIVERSITY CLASSES.

At the beginning of the Junior or Senior year the students of the college of science, literature, and the arts are allowed to choose between essay writing and orations. Those who elect essay writing are each required to write, submit for criticism, and to read before their class two essays per term. Those who elect orations are each required to give one oration per term. Each oration is carefully criticised, then re-written, and, when approved, rehearsed in private, and then presented in public to the students and faculty.

Juniors and Seniors in the college of mechanic arts are required to write papers on technical and professional subjects, which, after examination by the professors of that college, are submitted to the professor of rhetoric and elocution for criticism as rhetorical exercises. The amount of writing required does not exceed that required of students of the same grade in the college of science, literature, and the arts.

XVIII. INDUSTRIAL DRAWING.

PROFESSOR PIKE.

Drawing and descriptive geometry are required of the scientific students of the Collegiate Department, are optional for the modern students during the entire course, and for the classical students during the first two years.

The course is as follows:

SUB-FRESHMAN CLASS.—During the second term the students learn the use of the instruments, and draw a series of plates of geometrical problems, elementary projections, and applications of projections.

A special text-book, in pamphlet form, has been prepared by the department for the use of students. It contains data for the required problems, directions for lettering, directions about the use of instruments, and an outline of the whole course of elementary drawing.

FRESHMAN CLASS.—The use of the text-book is continued during the first term. Additional examples of projection are first taken up, after which instruction is given by means of models and machines, each student making sketches and taking actual measurements from which the final drawings are made. Tinting and shading are then taken up, and, after a number of practice plates are made, are applied to one or more projection drawings.

SOPHOMORE CLASS.—Descriptive geometry is taken up during the second term, especial attention being given to isometric and cabinet projections, linear perspective and the construction of shadows. In this, as in projection drawing, the work is done as far as possible from sketches and measurements taken by the students themselves.

A text-book for the use of the Sophomore class, similar in plan to the the one in use by the students in the Sub-Freshman and Freshman classes, is being prepared by the department, advanced sheets of which, in the form of "blue prints," have been used this year.

INSTRUMENTS AND MATERIALS.

It is very desirable that a good quality of instruments should be secured by beginners, and it is advised that separate pieces be bought rather than sets in boxes, as better instruments can be obtained in that way. The instruments should be of German silver, and care should be taken that the compasses have needle points.

The following outfit is recommended to begin with:

A drawing board, thirty-one inches by twenty-three inches, a T-square, a pair of triangles, a hard pencil, a right line pen, a pair of compasses with pen, pencil and needle points, a pair of plain dividers, a scale divided for drawing to scale of one inch, one-half inch, one-quarter inch, and one-eighth inch to the foot, a piece of India ink, a rubber, an irregular curve, six thumb-tacks, and six sheets of Whatman's imperial drawing paper.

THE COLLEGIATE DEPARTMENT.

This department, as the common avenue to the several university departments and courses of study, is under the immediate control and supervision of the general faculty of the University.

The object of this department is to furnish such discipline and information as will fit the student to pursue the higher academical studies of the COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS, or to enter upon the professional courses now offered in the COLLEGE OF AGRICULTURE, MECHANIC ARTS, and MEDICINE, and hereafter to be offered in colleges not yet opened.

The REGULAR ENTRANCE EXAMINATIONS begin on the first day of each university year. Examinations for entrance are commonly held by appointment in the month of June at the University. Candidates not presencing themselves at these times, apply to the general faculty for permission to be privately examined, stating satisfactory reasons for not attending at the stated examinations.

Certificates of the STATE HIGH SCHOOL BOARD are accepted, and the holders are excused from examination in the studies named therein. *No other certificates are now recognized.*

REQUISITES FOR ADMISSION.

APPLICANTS for admission to the Sub-Freshman class are examined in the following studies:

I. Geography—*One examination*, including *Descriptive Geography* as contained in Harper's, Eclectic, Winton's Common School Geography, or any equivalent works, and *Physical Geography*, as contained in Warren's, Guyot's, Houston's, or equivalent.

II. History—*One examination*, including *United States History*, as contained in the text-books of Quackenbos, Eclectic, Ridpath, or their equivalent, and *General History*, as contained in Swinton, Anderson, or equivalent.

III. Natural Philosophy—As contained in Gage's, Avery's, Norton's, or equivalent.

IV. Physiology—As given in Martin's, Dalton's, Houston's, or any equivalent work.

V. Arithmetic—*Complete;* from such treatises as Robinson, Wentworth, Olney, etc.

VI. Elementary Algebra—Robinson, Wentworth, Olney, or equivalent.

Applicants intending to study Latin will be further examined in—

(VII.) Latin Grammar—As contained in Harkness (revised edition), or Allen & Greenough.

(VIII.) Cæsar—Three books of the Commentaries.

(IX.) Cicero—First two orations against Catiline.

All others will be examined in Latin, as above, or in lieu thereof—

(VII.) English Grammar—Complete, including sentential analysis, as contained in the best school grammars. "Whitney's Essentials of English Grammar" is recommended as a text-book.

(VIII.) English Word Analysis—As contained in Swinton's New Etymology, or equivalent.

(IX.) English Composition—As contained in Hart's large work, or equivalent.

After the year 1885-'86 English Literature will be added to the above requirements in English. A theme will be written by the examinee upon some work or character in English or American classics, assigned by the examiner from a list of subjects announced in the Calendar from year to year. The subjects for admission in 1886 are, The Vicar of Wakefield, Ivanhoe, and Evangeline.

Applicants for admission to the Freshman class will be further examined in the work of the Sub-Freshman year in the course chosen.

SPECIAL STUDENTS.

The following resolutions, adopted by the general faculty December 20, 1884, will be in force from the beginning of the year 1885-'86. Students who have already been admitted as specials will be required to join classes in the regular courses or conform to the following rules in regard to their work, at the discretion of the faculty:

"1st. Applicants of mature years and judgment, and qualified as hereinafter stated, who desire to pursue one or two *lines* of study or investigation, may be allowed to take such studies as specially conduce to that object.

"2d. All applicants for special studies shall file, with their application to the registrar of the University, a statement, with reasons therefor, of the special lines of study they wish to pursue, which lines of study they will not thereafter change without the permission of the faculty in charge.

"3d. All applicants, as conditional to their admission as special students, shall pass an examination in so many of the subjects known as requisites for entrance to the regular course of study, as properly belong, or are naturally introductory, to the line or lines of study they have elected; for instance, if they have elected mathematics, they shall be examined in entrance mathematics; if history, then entrance history; if science, then entrance science, with Physical Geography, also; if English studies, or a modern language. then entrance English; if Latin, then entrance Latin; if Greek, then entrance Latin or English.

"4th. Applicants who pass the examinations mentioned in the third resolution, may be admitted to studies pursued by the Sub-Freshman, Freshman, Sophomore, Junior, or Senior classes, their fitness to enter upon them having been previously determined by such examinations as the faculty in charge of such studies may require,"

COURSES OF STUDY.

There are three courses of study in this department:

1. Classical, 2. Scientific, 3. Modern.

Applicants desiring to pursue Greek and Latin will select the classical course. Those desiring to pursue English, German, and French, with or without Latin, will select the modern course. Those desiring to pursue a course of scientific studies will select the scientific course.

Scientific students can take but one language at a time. This may be English, Latin, Greek, or German, followed by French.

Scientific students will govern themselves in the choice of a language according to the following regulation:

"Scientific students are required, upon admission, to select the languages they will respectively pursue, and cannot thereafter change, except as allowed by vote of general faculty; *provided,* however, that scientific students shall be free to elect French at the beginning of the third [Sophomore] year; and, *provided further,* that scientific students who have pursued German in the first [Sub-Freshman] year shall be free to elect between German and English at the beginning of the second [Freshman] year."

Applicants are free to select their courses of study upon admission, but cannot thereafter change them, except as allowed by a vote of the general faculty.

Each student completing a course receives a final certificate, which admits him to any appropriate college of the University at the beginning of the Junior year.

The following schedules do not include rhetorical exercises, for a scheme of which see page 50.

First Year—SUB-FRESHMAN CLASS. (III.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek—*Grammar.* 2. History—*ancient* (3). Algebra (2). 3. Latin—*Cicero.*	1. Chemistry—*elements.* 2. History—*ancient* (3). Algebra (2). 3. English—*Lat. elements* or Latin—*Cicero*, or German—(*begun*).	1. German (*begun*). 2. History—*ancient* (3). Algebra (2). 3. English—*Latin elements*, or Latin—*Cicero.*
II.	1. Greek—*Grammar and Anabasis.* 2. Plane Geometry. 3. Latin—*Virgil.*	1, Drawing (10 hours). 2. Plane Geometry. 3. English—*Lat. elements* or German (*continued*) or Latin—*Virgil.*	1. German (*continued*). 2 Plane Geometry. 3. English—*Lat. elements*, or Latin—*Virgil.*
III.	1. Greek—*Anabasis.* 2. Geometry (*completed*). 3. Latin—*Virgil.* 4, Drawing—*Free-hand*, (*optional*).	1. Botany—*elements.* 2, Geometry (*completed*). 3. English—*etymology*, or German—*selections*, or Latin—*Virgil.* 4. Drawing—*Free-hand*, (*optional*).	1. German—*selections.* 2. Geometry (*completed*). 3. English—*etymology*, or Latin—*Virgil.* 4. Drawing—*Free-hand*, (*optional*).

Second Year—FRESHMAN CLASS. (II.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek—*biography.* 2. Higher Algebra. 3. Latin—*Livy.*	1. Draughting (10 hours). 2. Higher Algebra. 3. English—*Old English Grammar*, or German—*Lessing*, or Latin—*Livy.*	1. German—*Lessing.* 2. Higher Algebra. 3. English—*Old English Grammar*, or Latin—*Livy.*
II.	1. Greek—*history.* 2. Trigonometry & Conic Sections. 3. Latin—*Sallust.*	1. Physics—*sound and heat.* 2. Trigonometry and Conic Sections. 3. English—*Old and Middle English*, or German—*Schiller*, or Latin—*Sallust.*	1. German—*Schiller.* 2. Trigonometry and Conic Sections. 3. English—*Old and Middle English*, or Latin—*Sallust.*
III.	1. Greek—*oratory.* 2. Botany—*elements.* 3. Chemistry—*elements.* 4. Surveying (*optional*).	1. Chemistry—*general*, (*continued*). 2, Botany (*continued*). 3. Physics. 4. Surveying (*required*).	1. German—*Gœthe.* 2. Botany—*elements.* 3. Chemistry—*elements.* 4. Surveying (*optional*).

Third Year—SOPHOMORE CLASS. (I.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Latin—*Horace.* 2. Physics (*begun*). 3. English—*hist. English lang. Chaucer*, or French (*begun*). 4. Astronomy (3).	1. Chemistry—*organic.* 2. Zoology. 3. English—*hist, E. lang.* or French (*begun*), or Latin—*Horace*, 4. Astronomy (3).	1. French (*begun*). 2. Physics (*continued*). 3. English—*hist. English lang. Chaucer*, or Latin—*Horace.* 4. Astronomy (3).
II.	1. Greek—*tragedy.* 2. Rhetoric. 3. English—*Shakspere*, or French (*continued*).	1. Descriptive Geometry (10 hours). 2. Rhetoric. 3. English—*Shakspere*, or French (*continued*). 4. Chemistry—*applied* (3)	1. French (*continued*) 2. Rhetoric. 3. English—*Shakspere.*
III.	1. Greek—*philosophy.* 2. History—*modern*, or Analytical Geometry.* 3. Latin—*Tacitus.*	1. Zoology or German. 2. History—*modern*, or Analytical Geometry.* 3. English—*Milton*, or French (*continued*), or Latin—*Tacitus.*	1. French (*continued*). 2. History—*modern*, or Analytical Geometry.* 3. English—*Milton*, or Latin—*Tacitus.*

1. The members of the Sub-Freshman class, and all students lately admitted, are required to attend courses of lectures as follows: (1) on the use of the library and the relations of students to the university, to be delivered by the president, in alternate weeks during the first term of each year; (2) on books and reading, by the professor of English, in alternate weeks during the second term.

2. Each student, whether regular or special, must have, as a general rule, three recitations a day (15 per week), besides rhetorical exercises. The faculty, upon application in writing, may, in their discretion, excuse a student from one or more studies or exercises, or may allow an additional study or exercise. Unless otherwise specially provided, all such indulgences cease with the term.

Changes in course of study, except in urgent cases, will be allowed only at the beginning of the year.

EXAMINATIONS.

1. Examinations in this department are held in every study at the close of each term. The marks for these are combined with the

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*Analytical Geometry is required of students who are to take any course in the College of Mechanic Arts.

daily marks of recitations in such a way as to throw increasing weight upon the examinations as the student proceeds from year to year in his course. In order to be "passed" in any study or exercise, the student must obtain sixty-five per cent. of the available marks. The object of the marking system is to preserve, for the use of the faculty, a convenient record of the diligence and proficiency of the students, so far as these can be inferred from numerous averages of approximate judgments. Statements of standing will be furnished to parents or guardians at any time, upon request. Students receive notice of failures and deficiencies.

2. Students who have been unsuccessful in examinations are separated into two classes: (1) those who have "failed;" (2) those who have been "conditioned," *i. e.*, may pass on making up in a satisfactory manner certain specified parts of the subjects. Students who have "failed" are required to take the subjects over with a succeeding class. Students who have been "conditioned" must remove the conditions within two terms, or be regarded as having "failed."

3. All examinations are conducted in writing, but any professor or instructor in charge may add such oral questions as he may deem proper.

4. No student of the collegiate department can be advanced in rank whose conditions amount in the aggregate to more than one term's work. No student can receive a final certificate of admission from the collegiate department who has any condition whatever.

5. *Particular attention* is called to the following rules:

I. All examinations of the students of the collegiate department other than the regular term examinations of classes or sections are designated "special examinations."

II. Public special examinations will be held as follows:

(1). In the first week of the first term in connection with the regular entrance examinations.

(2). In the last week of the second term, beginning on Thursday morning. The program of this examination will be made to accommodate all students who may give two weeks notice.

III. No other special examination shall be held except by vote of the general faculty—upon application in writing.

IV. The regular class examinations being regarded as a part of the course of instruction, and the merits of students being only partly determined by them, are calculated for students who have received the instruction of the class. Persons, therefore, who have not attended the instruction in whole or in part will be examined so as fully to test their proficiency.

Public special examinations are adapted to the following cases:

(1). Of students who have been unsuccessful in the regular examinations.

(2). Of students who, for reasons satisfactory to the faculty, have been absent from the regular examinations.

(3). Of students intending to be absent, for reasons approved by the faculty, who desire to be examined in advance of their classes.

(4). Of students who are allowed by the faculty to be advanced in rank upon examination without attending the class instruction.

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

THE FACULTY.

The PRESIDENT, PROFESSORS BROOKS, DOWNEY, MOORE, DODGE, HALL, BENTON, SANFORD, and PIKE.

ADMISSION.

Applicants who have completed courses of study in the collegiate department are entitled to admission to the corresponding courses of this college upon their final certificates. No person can obtain admission to regular standing who has any conditions below Junior year. Other applicants, if candidates for graduation, must pass equivalent examinations. Persons desiring to pursue special studies in this college apply in writing to the faculty of the college, and submit to such tests as the faculty or the professors require.

This college is intended to furnish higher courses of LIBERAL studies leading to the customary academical degrees. Much of the instruction is given by lectures, and, in general, the methods and principles are those proper to university students.

COURSES OF STUDY.

There are three regular under-graduate courses, as given below. They are arranged according to the following principles:

1. There are, in general, in each course fifteen hours per week of recitations and lectures, besides rhetorical and other exercises not shown in the schedule.
2. There are five hours per week of prescribed, and at least ten of optional or elective work.
3. The required studies of any two courses are electives with reference to the third course.

JUNIOR YEAR.

1ST TERM—	*Required.* In the classical course: Greek—*Homer.* In the scientific course: Physics—*mechanics.* In the modern course: German—*Gœthe.* *Elective.* History of Civilization (3), Comparative Philology (2), Analytical Geometry, Analytical Chemistry, Zoology, Scandinavian, English.
2D TERM—	*Required.* In the classical course: Latin—*Plautus, Cicero.* In the scientific course: Mineralogy. In the modern course: German—*Lessing.* *Elective.* Logic, Differential Calculus, Analytical Chemistry (3), Theoretical Chemistry (2), Physics, Zoology, Scandinavian, English.
3D TERM—	*Required.* In all courses: English Literature. *Elective.* Psychology, Integral Calculus, Analytical Chemistry, Latin, German (literature), Physics, Zoology, Scandinavian.

SENIOR YEAR.

1ST TERM—	*Required.* In all courses: Geology. *Elective.* History of Philosophy, American Literature with Lectures on Oratory, Analytical Chemistry, Astronomy. French.
2D TERM—	*Required.* In all courses: Ethics. *Elective.* Civil Government (4), French, Analytical Chemistry (4), Economic Geology (4), Sanitary Science (1), International Law (1).
3D TERM—	*Required.* In all courses; Political Economy. *Elective.* Practical Astronomy, French, Analytical Chemistry, English Literature (2), Natural Theology (2), Anthropology (2), Greek (2).

1. When not otherwise indicated by an appended figure, the studies and exercises named in the tables occur five times in the week.
2. In regard to rhetorical work, students in this college are authorized to choose between essay-writing and orations. Those choosing essays are required to write two each term. Those choosing orations are required to write and deliver one each term. See page 51.
3. Students of the classical and scientific courses who begin German in the Junior year are at liberty to continue it as an elective during the Senior year.
4. Classical and scientific students who have not previously had French, can begin it in the Senior year.
5. Seniors are allowed to elect mathematics of the Junior year.

GRADUATION.

Students completing courses of study to the satisfaction of the faculty of the college, are entitled respectively to receive the appropriate baccalaureate degrees, to-wit: Bachelor of Arts, Bachelor of Science, Bachelor of Literature.

Any person may undergo, at suitable times, examination in any subject; and if such a person pass in all the studies and exercises of a course, he is entitled to the appropriate degree.

EXAMINATIONS.

The proficiency of the students of this college in the various departments of instruction is ascertained by means of examinations only. The principal examination in any subject takes place at the end of the term. Intermediate examinations are held during the term, without notice, at the discretion of professors. The results are combined and reported on a scale of one hundred. The merits of the rhetorical and other exercises are reduced to the same scale at the end of each term. A minimum mark of seventy-five per cent. in each study and exercise is necessary to "pass."

THE COLLEGE OF MECHANIC ARTS.

FACULTY.

The PRESIDENT, PROFESSORS HALL, DOWNEY, PIKE (Secretary).
Instructors: DECKER and CARR.

ADMISSION.

TO THE UNDERGRADUATE COURSES.

Applicants who have completed the scientific course of the collegiate department are entitled to admission to the Junior class without further examination. Other applicants, if candidates for graduation, must pass satisfactory examinations in all the studies of that course. Applicants for special studies in this college are admitted to the classes if competent, in the judgment of the professors concerned, to receive the instruction.

The aim of the instruction given in the regular undergraduate courses of this college is to lay a broad and solid foundation in mathematics, mechanics, and drawing, so that, with the practice in field, shop and office work given to the students in the respective courses, they shall be fitted for immediate usefulness upon graduation, and after a moderate amount of subsequent practice and experience, be capable of taking charge of important works.

COURSES OF STUDY.

Three regular undergraduate courses have been organized upon the following data:

1. There are fifteen lectures or recitations per week, besides daily exercises in drawing, field or shop work, and the theoretical and other exercises.

2. As a general rule there are ten hours a week of prescribed recitation work, and five of elective.

3. The electives are chosen from corresponding years and terms of this and other colleges.

The third study is, as a rule, elective. The one named is generally recommended to be taken, but the student is free to pursue any of the authorized "electives."

The rhetorical exercises of this college consist of papers or reports each term, on professional subjects approved by the professor in charge of the course in which the student is enrolled. The labor of preparing these papers or reports is not designed to exceed that required by the rhetoricals in the college of science, literature and the arts. As a condition of graduation, each student is required to present a satisfactory thesis, with the necessary drawings, which are accepted in lieu of other rhetoricals in the last term of the Senior year. These theses are to be deposited in the university library.

JUNIOR YEAR.

TERM	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	1. Elements of Mechanism. 2. Analytical Geometry. 3. History of Civilization (3), Compar. Philology (2), *or other electives.* 4. Drawing or shop work.	1. Curves, leveling, and earthwork. 2. Analytical Geometry. 3. History of Civilization (3), Compar. Philology (2), *or other electives.* 4. Field work or drawing.
II.	1. Mechanics (statics). 2. Differential Calculus. 3. Mineralogy. 4. Drawing (des. geom.) or shop work.	1. Mechanics (statics). 2. Differential Calculus. 3. Mineralogy. 4. Drawing (Descriptive Geometry).
III.	1. Mechanics (dynamics) and strength of materials. 2. Integral Calculus and Theory of Equations. 3. English Literature, *or other electives* 4. Drawing or shop work.	1. Mechanics (statics) and strength of materials. 2. Integral Calculus and Theory of Equations. 3. English Literature, *or other electives.* 4. Topography and drawing.

SENIOR YEAR.

TERM	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	1. Machinery. 2. Applied Descriptive Geometry. 3. Geology or Astronomy. 4. Drawing or shop work,	1. Arches, retaining walls and hydr'lics. 2. Stereotomy. 3. Geology or Astronomy. 4. Railroad work and Drawing.
II.	1. Steam engines, *and other motors.* 2. Testing strength of materials. 3. Civil Government, *or other elective.* 4. Drawing or shop work.	1. Roofs, trusses, and lectures on motive power. 2. Testing strength of materials. 3. Civil Government, *or other elective.* 4. Drawing.
III.	1. Designs and Specifications. 2. Practical Astronomy. 3. Political Economy, *or other elective.* 4. Drawing on designs.	1. Designs and Specifications. 2. Practical Astronomy. 3. Political Economy, *or other elective.* 4. Drawing on designs.

III. ARCHITECTURE.

This course coincides with that in civil engineering, except as follows:

1. The drawing throughout the course is especially arranged for architectural work.
2. In the first term of the Junior year, history and orders of architecture are substituted for curves, leveling, and earth work.
3. In the second term Senior year, lectures on decoration and color are substituted for lectures on motive power.
4. In the third term Senior year, the designs and specifications are those of buildings, instead of bridges, etc.

GRADUATION.

Students completing the foregoing regular courses to the satisfaction of the faculty, are entitled respectively to receive appropriate baccalaureate degrees, to-wit: Bachelor of Civil Engineering, Bachelor of Mechanical Engineering, Bachelor of Architecture.

Students completing either of the courses in the Artisans' Training School may receive certificates of proficiency from the faculty.

Special students receive certificates for successful examinations in the branches pursued. Any person is entitled to undergo examination in any subject, at convenient times; and if such person pass in all the studies and exercises of any course, he is entitled to the appropriate degrees.

EXAMINATIONS.

The proficiency of students in this college is ascertained by examinations conducted in writing at the close of each term. These are estimated on a scale of one hundred. The marks of the rhetorical and other exercises are reduced to the same scale at the close of each term. A minimum of seventy-five per cent. in each study and exercise is necessary to "pass."

METHODS OF INSTRUCTION.

Instruction in the several subjects pertaining to civil and mechanical engineering and architecture is given by text-books, lectures, reading in the general library, and practical exercises, the theories taught in the class-room being applied in the solution of practical problems and the construction of original drawings. Accurate tests of the strength of all the most common materials of construction are made by the students by the use of the testing machine. Among the important tests are those on the deflection and ultimate strength of full sized beams. Careful records are kept by the students of each test, and the moduli of elasticity and rupture are calculated from the data thus obtained. The students are also required to visit the various machine shops, bridges and important structures in the vicinity, and make reports upon them, accompanied by sketches and necessary measurements. The students in mechanical engineering receive a thorough drill in the use of tools in a series of instruction shops, thus fitting them for superintending the construction of the designs which their training in class and drawing-rooms will prepare them for. Instruction is also given in the actual use of the steam engine indicator, and by its use in connection with other observations, these students make an accurate test of the power of the university engine. Field practice is a portion of the regular course of civil engineering. The classes in surveying are drilled in the measurement of land already divided up, in the laying out of fields of given shape and area, in the subdivision of land as practiced by the government surveyors, and in the solution of various geometrical and trigonometrical problems from data taken by the students themselves. In railroad work the students have practice in laying out curves, taking levels, cross-sectioning, staking out—in fact, they do all the work of locating a railroad line, from the preliminary survey up to the point of actual construction. In topography the classes make a complete survey of a piece of land with diversified surface, and make a finished drawing, showing the contour lines and other details. In the drawing room the students in the various courses receive thorough drill in making both working and finished drawings from plates, from machines and structures already built, and from original designs of their own.

APPARATUS.

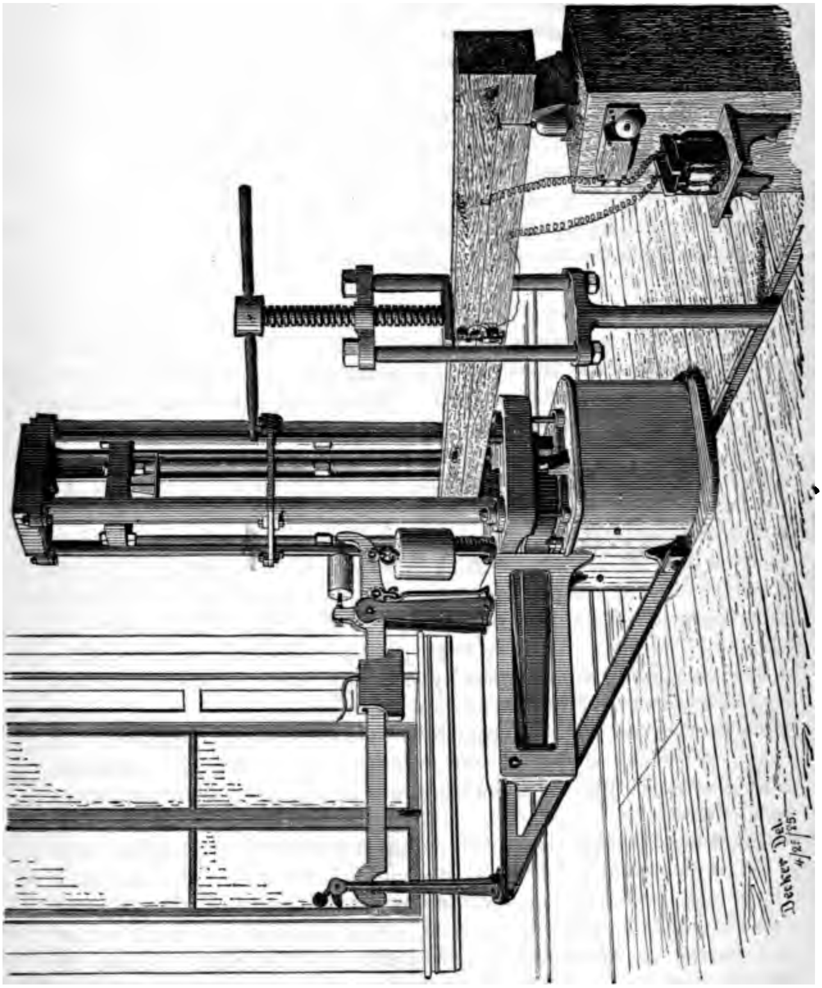
This college possesses the following apparatus:

For mechanical engineering—a Haskin's vertical steam engine and boiler; a Sturtevant pressure blower, and a Sturtevant exhaust fan; eight stationary forges with anvils, and the necessary tools for a thorough drill in forge work; a portable forge with anvil and tongs: benches fitted with ten vises and the tools for systematic instruction in filing and chipping; benches, vises, and eight complete sets of tools for wood work; two circular saws, a band saw, a foot lathe, with tools for working in wood and metal; a Thompson's steam engine indicator, with full list of accessories; a number of models of machinery, including a set of belting models, and one of screw threads; a collection of drawings or plates of machine construction; a pair of very accurate and highly finished test gauges, registering pressures up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure gauges, and a pump for testing boilers.

For civil engineering—a compass, three transit instruments (one with solar attachment), two levels with rods, two chains, three tapes, pins, transit rods, a self reading rod, a hand level, several models of bridges and roofs, a few drawings and tools for modeling in the course in stereotomy.

For general use—a 50,000 pounds testing machine, manufactured by Tinius Olsen, of Philadelphia, which can be adapted for compressive, tensile, transverse, and shearing tests. Other pieces of apparatus have been designed by the department to be used in connection with the testing machine in making tests of full sized beams. The machine as adapted for testing large beams is shown in Plate 1. Apparatus for taking blue prints, with adjustments for turning the paper so as to be always perpendicular to the direction of the sun's rays, made from designs by the department, and which is used by the engineering students in copying drawings; a full set of Schrœder's models for descriptive geometry; a set of large plates for wall use, from which drawings are made; a photographic outfit, by means of which photographs from four by five to eight by ten inches can be taken.

The United States Coast survey has furnished the University with a set of standard weights and measures which have been put under the charge of this college. The complete set embraces: 1. A yard scale divided to inches and tenths, with a matrix for comparison of end yards. 2. Weights from one grain to twenty-five pounds. 3. Liquid capacity measures, a pint, a quart, and a gallon. 4. Dry capacity measures, a quart, a half peck, a peck, and a half bushel.


Decker Del. 4/25/85.

1. Olsen Testing Machine

Adjustments of these Standards.—The yard is a line measure and an end measure. The jaws of the matrix forming the latter are given a slight slope. The yard scale is standard at 55.3° Fahrenheit. The bottom of matrix is standard at 71.7° Fahr. The expansion of the brass scale may be assumed as 0.00036 inch per 1° Fahr.

The weights are so closely adjusted to the standards that final comparison could detect no sensible corrections. The liquid measures are adjusted to the temperature of 60° F. At this temperature,

The gallon equals a standard gallon less 0.01 cu. inch.
The quart equals a standard quart less 0.005 cu. inch.
The pint equals a standard pint plus 0.007 cu. inch.

The dry measures are adjusted to the temperature of the maximum density of water or 39.01°. At this temperature:—

The half bushel equals the standard less 0.01 cu. inch.
The peck equals the standard less 0.003 cu. inch.
The half peck equals the standard less 0.009 cu. inch.
The quart equals the standard less 0.009 cu. inch.

SPECIAL ANNOUNCEMENT.

During the coming summer the new building for the use of this college will be erected and equipped, and will afford facilities for extending the practical work of the college, due announcement of which will be made.

THE ARTISANS' TRAINING SCHOOL.

This school has been established as a department of the College of Mechanic Arts to meet the wants of mechanics and others, and takes the place of the courses in shop work and drawing heretofore given.

The students of this school are separated into four divisions, viz:

A. Those who wish to devote themselves wholly to shop work and industrial drawing as a preparation for entering upon active life.

B. Those desiring to receive instruction in mathematics, as well as in shop work and drawing.

C. Those whom circumstances prevent from taking either of these courses, and who wish day instruction in drawing.

D. The evening drawing class for working artisans.

A. DIVISION.

I. Term.	*II. Term.*	*III. Term.*
Vise work.	Forge work.	Wood work.
Drawing.	Drawing.	Drawing.

B. DIVISION.

I. Term.	*II. Term.*	*III. Term.*
Vise work.	Forge work.	Wood work.
Drawing.	Drawing.	Drawing.
Algebra.	Trigonometry.	Solid geometry or surveying.

C. DIVISION.

Industrial drawing, beginning at any time, but to be pursued consecutively.

D. DIVISION.

Twenty-five evening lessons in mechanical drawing, beginning October 12, at 7:30 P. M.

ADMISSION.

Applicants for admission to any of the divisions must be at least fifteen years of age, and must pass examinations as follows: A Division—In reading, writing, and arithmetic: B Division—In reading, writing, arithmetic, elementary algebra, and plane geometry. Members of this division who pass examinations in geography and United States history may be allowed to select studies from the collegiate department under direction of the faculty; C and D Divisions—No examinations required.

METHODS OF INSTRUCTION.

In the courses of the Artisans' Training School the instruction in shop word is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the stu-

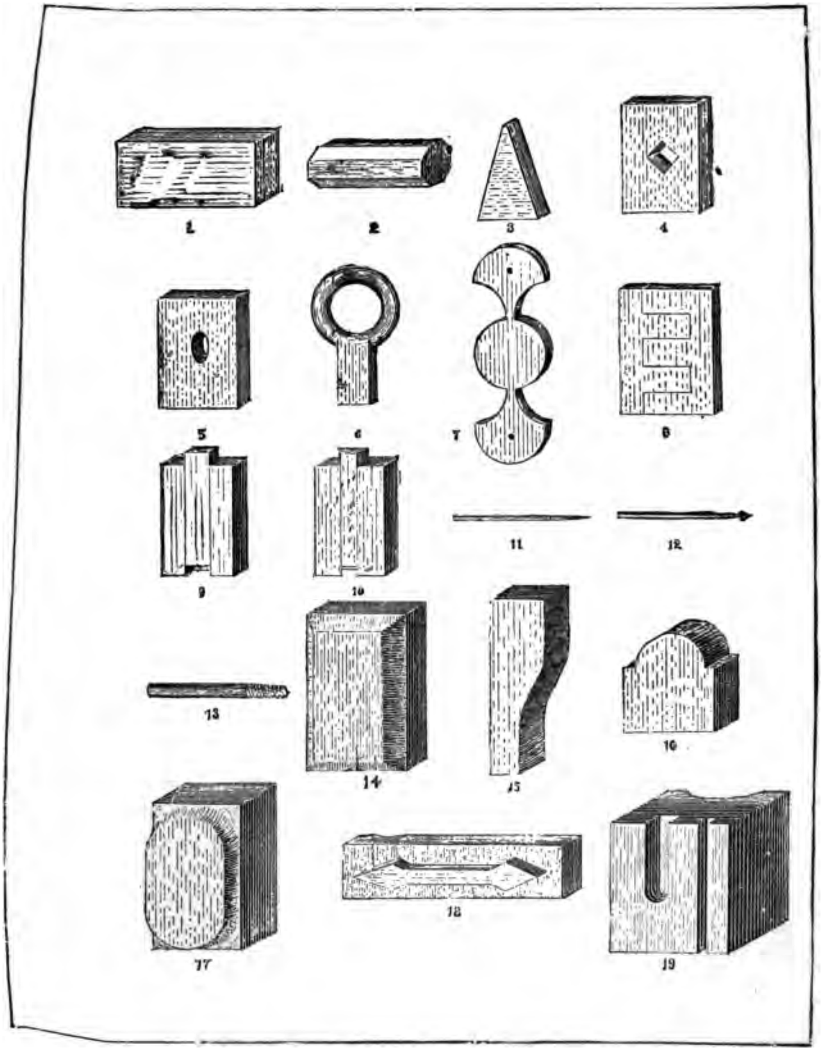


PLATE 2.—Course in Vise work

dent in the use of tools, leaving out the idea of construction except in so far as it may not interfere with instruction. The function of this school being to teach the use of tools in general, rather than any particular trade, much time can be saved by devoting the entire attention of both student and instructor to the manipulation of the tools, and avoiding the repetition of the same operation which necessarily occurs when construction is an object rather than an incidental. The preparation of exercises, in any particular branch of work, consists in first carefully analyzing the various operations and reducing them to their simplest forms, and then classifying them in such a way as to have them succeed each other in the order of their difficulty. Thus, if we examine into the work usually done at the vise, we see that the greater part of the work done there is made up of various combinations of the following operations:—Filing to straight or curved lines, either between two lines or to one line alone, filing to template, fitting, free hand filing, with and without the hand vise, sawing and chipping plane and curved surfaces. Starting, then, with these operations to be taught, a course is designed which shall take them up one at a time and apply them to wrought iron, cast iron, and steel. The course as thus planned is shown in Plate 2. Plate 3 represents the course in forge work which covers the following operations:—Bending, upsetting, drawing out, welding, punching, splitting, forming, and tempering. These are applied to various grades of iron and steel. In the course in wood work, shown in Plate 4, the work covers the following:—Striking, driving nails, marking, sawing, planing, an application of the preceding to making a carpenter's horse; chiselling, rabbetting, sand papering, application of all preceding lessons in a set of shelves, which also includes an exercise in blind nailing; timber joints, straight and oblique mortise and tenon, application of all the preceding in making an oak drawing desk, including three methods of dove-tailing. The drawing in this school is conducted on the same plan as in the engineering courses, the students first using the text-book prepared for the department, and afterwards varying their work to meet their individual requirements.

In mathematics the instruction covers algebra, solid geometry and trigonometry, taught with special reference to the needs of this class of students, and giving many applications to practical matters,

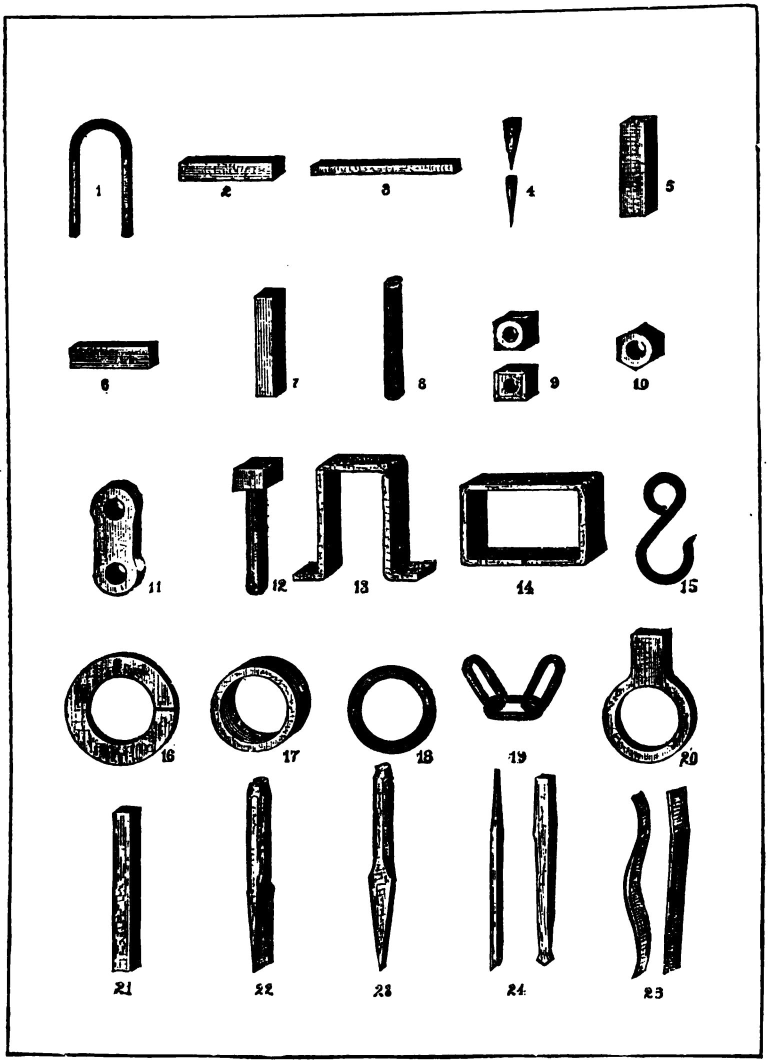


PLATE 3.—Course in Forge work.

REGULATIONS.

All members of this school are required to deposit $5.00 with the treasurer of the University or his agent, which will be returned to members of divisions A, B, and C when connection with the school ceases, less such charges as may be made for damage to tools or other property, and to members of division D when their connection ceases, if they have been regular in attendance, less such charges for damages as may be made. Divisions A, B, and C will come under general regulations as to attendance, etc.

Students of the B Division should, if possible, enter at the beginning of the year; of the A Division at the beginning of the term: of the C Division preferably at the beginning of terms, and of D Division as stated on page 70.

Tuition is free in all the courses. The annual fee of $5.00 is required of all the students of this college except members of the Artisans' Training School. Of these a deposit of $5.00 will be required on admission, to insure regular attendance, return of tools, etc. This deposit will be returned at the end of the course if the requirements are fulfilled.

For further information as to this college apply in person or by letter to the secretary of the faculty, PROF. WM. A. PIKE.

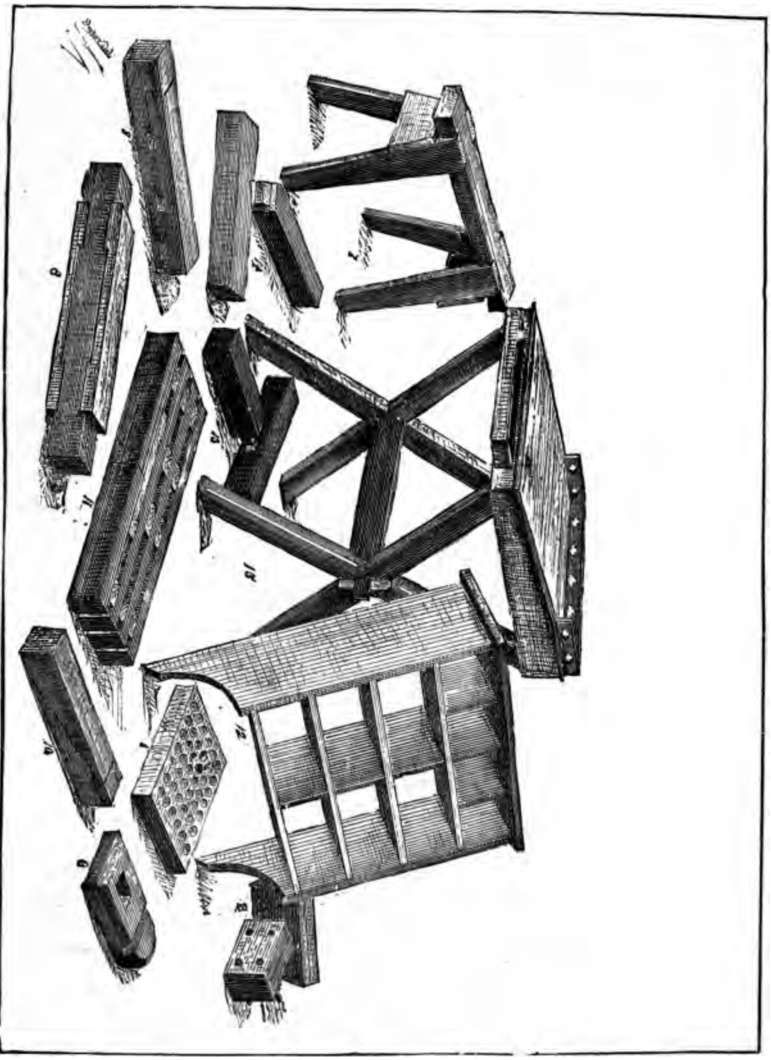


PLATE 4.—Course in Wood work.

GRADUATE DEPARTMENT.

This department is designed to meet the wants of graduates of colleges who desire to pursue special lines of study further than is possible in undergraduate courses. It is not intended to be a mere extension of the college course in the interest of general culture. but rather a school for the education of *specialists* in the various branches of knowledge offered. The work required will be much less general than the subjects as stated below would indicate, the object being to secure high attainments in something, rather than a superficial knowledge of everything. The department is open to all graduates of colleges, whether desiring to become candidates for the master's degree or not.

The regulations governing this department are contained in the following resolutions, adopted by the general faculty in April, 1885:

I. Masters' degrees in science, literature, and the arts will be conferred on bachelors of this or any other reputable college or university, who, not sooner than two years after graduation, pass an examination on certain prescribed lines of classical, scientific, or literary studies, and present a satisfactory thesis.

II. Candidates are required to present their applications on the proper blank, stating the particular degree desired, the several subjects selected by them in which to be examined, and the titles of their theses. Graduates of other college or universities will exhibit their diplomas on filing their applications. After the approval of the application by the faculty of the college, no changes or departures will be permitted.

III. The following lines of study are offered to candidates:

1. Mathematics, including Astronomy.
2. Natural Science, including Botany, Zoology, and Antropology.

3. Physical Science, including Chemistry, Physics, Mineralogy, and Geology.
4. Philosophy, including Logic.
5. Political Science, including International Law, History of Civilization, and Comparative Philology.
6. Greek Language and Literature.
7. Latin Language and Literature.
8. German Language and Literature.
9. Romance Languages and Literatures.
10. English Language and Literature, including Rhetoric.
11. Scandinavian Languages and Literatures.
12. History.

IV. The amount of work done by the candidates shall be equivalent to that done by the Senior class, viz: three terms work on three distinct subjects each term, with a thesis in addition.

V. The following is the schedule of work requisite for the master's degrees:

FOR MASTER OF ARTS.

1. Greek and Latin.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a classical subject.

FOR MASTER OF SCIENCE.

1. Two distinct lines of science.
2. Any two other distinct lines of study selected from the list in III. above.
2. A thesis on a scientific study.

FOR MASTER OF LITERATURE.

1. German and Romance Languages.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a literary subject.

VI. The time allowed for each line of study shall be from one to three terms.

VII. The proficiency of candidates shall be determined by examinations only.

VIII. A residence at the University is not required of candidates for the masters' degrees, but instruction will be given to such candidates as are resident and desire it, by the professors in charge of the studies pursued.

IX. All examinations shall be held at the University.

X. All the regulations governing candidates for the masters' degrees shall apply to the candidates for the second degree in the college of mechanic arts. The following is the schedule of work requisite for the degree:

FOR CIVIL ENGINEERING.

1. Some subject in civil engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in civil engineering.
4. A thesis on a subject in civil engineering.

FOR MECHANICAL ENGINEERING.

1. Some subject in mechanical engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in mechanical engineering.
4. A thesis on a subject in mechanical engineering.

FOR ARCHITECT.

1. Some subject in architecture.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in architecture.
4. A thesis on a subject in architecture.

XI. Bachelors of this or any other reputable college or University, not desiring to take a degree, are allowed, subject to all the regulations governing the candidates for degrees, to pursue and to be examined in the studies of the post-graduate courses, and a certificate of attainments will be given them if they desire it.

THE COLLEGE OF AGRICULTURE.

THE FACULTY.

The PRESIDENT, PROFESSORS DODGE, HALL, PORTER (*Secretary*).

FACILITIES.

Students in the college of agriculture receive the benefit of the library and apparatus of the University, as well as of those belonging to the college. The whole may be enumerated as follows:

(1.) The general library of the University, containing nearly 20,000 volumes, and receiving frequent additions. More than one hundred volumes are especially devoted, in a practical manner, to the subjects of agriculture, horticulture, tree culture, and stock raising. Besides these there are several hunderd volumes on botany, zoology, anatomy, physiology, and other sciences related to agriculture.

(2.) The general museum of the University, containing a large collection of minerals, casts of extinct animals, stuffed mammals and birds.

(3.) The museum of technology, containing materials and products used in illustrating manufacturing processes.

(4.) The museum of agriculture, containing at present a collection of models of machines and implements; a collection of the seeds of garden vegetables, grain and grass seeds in glass jars; a collection of grains and grasses in the straw; a collection of fruits in alcohol; a large collection of woods from the United States Department of Agriculture; a collection of plates and lithographs; miscellaneous objects and materials used in agriculture. Donations always welcome.

(5.) Chemical and physical laboratories, supplying opportunities for the student to practice with his own hands.

(6.) Drawing rooms.

(7.) Engineers' and surveyors' instrments, and a testing machine.

(8.) The plant house, 24 x 46 feet, with a recent addition of half these dimensions supplying plants and flowers for the study of botany, and apparatus for instruction in propagation and the care of plants.

(9.) The experimental farm, used for testing the different varieties of vegetables, grains, and fruit, is made to illustrate as much as possible the principles taught in the class room.

The farm heretofore occupied for this purpose having been cut into four unqeual and ill-shapen pieces by University avenue and the C. M. & St. P. R. R., and being needed to meet the wants of a rapidly growing city, has been abandoned and sold, and the proceeds invested in a new farm, located on Como avenue, between Minneapolis and St. Paul, and containing three hundred and forty-two acres of most valuable land, admirably diversified in soil, exposure prairie, and woodland.

The regents are erecting a complete set of buildings, and it is designed to furnish this farm with such an equipment of stock, implements, and machinery as will fitly represent the agricultural resources of Minnesota, and render this department of the University one of the finest experimental stations of the country.

SCOPE OF INSTRUCTION.

IN AGRICULTURAL CHEMISTRY.—A study of the elements of the volatile parts of plants, as carbon and oxygen; a study of the organic compounds of plants, as water, starch, and sugar; a study of the elements of the ash of plants and their compounds, as potassium, calcium, iron, sulphates, and phosphates; a study of the atmosphere and the soil as related to vegetation, and as sources of food to plants; a course in the analysis of soils, fertilizers, grain, and fodders.

IN ECONOMIC ENTOMOLOGY.—General characters of insects; characters and peculiarities of those families containing useful or injurious members, together with a special study of the more important individuals of these families.

IN HORTICULTURE.—Relations of heat, light, moisture, and food to plant growth, and the means of controlling their supply and intensity; plant houses, hot beds, etc.; soils and manures, and their manipulation; propagation of plants; grafting, budding, pruning, training, etc.; planting and transplanting; hybridizing, crossing, and selecting; cultivation of the apple, pear, plum, and other large fruits; cultivation of the currant, strawberry, raspberry, cranberry, and other small fruits; kitchen gardening, market gardening, landscape gardening, and floriculture.

IN ARBORICULTURE.—Reasons for planting forest trees; what trees to plant; method of propagating; care in the nursery; special culture of each species.

IN PRACTICAL AGRICULTURE.—History of agriculture; brief review of chemical composition and physical properties of air and water as related to the soil and vegetation; the chemical constituents and practical classifications of soils; properties, peculiarities, treatment, and adaptations of each kind; reclamation and improvement of soils, including drainage, subsoiling, trenching, altering, following, paring and burning, preparatory tillage, road making, and fencing; manufacture, preservation and application of manures and stimulants; green manuring and irrigation; farm implements and machinery; production, management and sale of the different crops; the different breeds of farm animals, their characteristics and adaptations; breeding, rearing, feeding, and management for different purposes to which is suited; selection and purchase of farms; the situation, relative position, size, and internal management of farm buildings, and their adaptation to purposes for which they are intended.

IN COMPARATIVE ANATOMY AND PHYSIOLOGY.—Anatomy, physiology, and hygiene of the domestic animals.

IN VETERINARY MEDICINE AND SURGERY.—Prevension and treatment of diseases and injuries of the domestic animals.

ECONOMICS.—Farm accounts, grain raising, stock raising, dairying, general farming, fruit culture, market gardening, and other specialties; relations and sequence of farm operations; legislation relating to agriculture; relations of agriculture to commerce, manufactures, labor, government, taxation, etc.

THE REGULAR UNDERGRADUATE COURSE.

	JUNIOR YEAR.
1st TERM—	1. Composition and physiology of plants—"how crops grow." 2. Horticulture. 3. Mechanical physics, *or other elective.*
2d TERM—	1. Agricultural chemistry. 2. Mineralogy and chemistry. 3. Mineralogy, *or other elective.*
3d TERM—	1. Atmosphere and soils—"how crops feed." 2. Horticulture. 3. Psychology, *or other elective.*
	SENIOR YEAR.
1st TERM—	1. Practical agriculture—"soils and fertilizers." 2. Comparative anatomy and physiology. 3. Geology, *or other elective.*
2d TERM—	1. Practical agriculture—"farm crops." 2. Veterinary medicine and surgery. 3. Civil government, *or other elective.*
3d TERM—	1. Practical agriculture—"farm animals." 2. Economics—"accounts, markets, etc." 3. Political economy, *or other elective.*

The third study named in the above table is the one recommended to be generally taken, but students are free to pursue any one of the other authorized electives.

The rhetorical exercises in the college of agriculture are the same as in corresponding years and terms of the scientific courses.

Students completing the above course to the satisfaction of the faculty, are entitled to receive the degree of Bachelor of Agriculture.

This course properly follows the scientific course of the collegiate department, but it may also follow either of the other courses of that department or the elementary course in agriculture. Applicants who have completed any of these courses are therefore entitled to admission to this college. Other applicants, if candidates for graduation, must be examined in the same or equivalent studies.

THE ELEMENTARY COURSE.

This course agrees in the main with the scientific course of the collegiate department, but differs from it in the substitution of some natural sciences and practical instruction for languages and mathematics in the latter part. The requisites for admission are the same as for admission to the collegiate department.

SPECIAL COURSES.

While the above courses of study are provided for those who desire a systematic education in scientific agriculture, the board of regents provide in their by-laws for the ADMISSION OF ANY PERSONS TO ANY CLASS in this College, upon the sole condition that they appear to be competent to receive the instruction.

Under the authority of this by-law the following courses have been arranged. They are not designed in any way to limit the advantages offered by the by-law. Any person who can read and write the English language can enter either course without examination.

Beginning First Term, September, 1885.

	FIRST TERM.	SECOND TERMS.	THIRD TERM.
I.	1. Agricultural chemistry—*how crops are raised.* 2. Agriculture—*soils and manures.* 3. Horticulture—*fruits.*	1. Agricultural chemistry—*how crops grow.* 2. Agriculture—*farm animals.* 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture—*farm crops.* 3. Horticulture — *vegetables.*

Beginning Second Term, December, 1885.

	SECOND TERM.	THIRD TERM.
II.	1 Agricultural chemistry—*how crops grow.* 2. Agriculture—*farm animals.* 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture—*farm crops.* 3. Horticulture—*vegetables.*

Beginning Third Term, March, 1886.

III.	1. Farm drainage and farm accounts.	2. Agriculture—*farm crops.*	3. Horticulture — *vegetables,*

THE FARMERS' LECTURE COURSE.

This course is specially designed to meet the wants of farmers and others who desire scientific and practical information relating to their calling, and whose business prevents them from spending the entire year away from home.

The instruction given is both scientific and practical. The former includes agricultural chemistry, botany, physiology, entomology, geology and mechanics, and is given by those professors who have these departments in charge in the University. The latter includes the improvement of soils by drainage, subsoiling, trenching, plowing, rotations, manures, etc., grain raising, dairying, fruit culture, forest culture, farm accounts and rural architecture, and is given by the professor of agriculture and by men who have become successful and noted in these special departments.

No fees, examinations, or other conditions are imposed for admission to this course, but its advantages are ABSOLUTELY FREE TO ALL.

THE COLLEGE OF MEDICINE.

THE FACULTY.

The PRESIDENT, PROFESSORS HEWITT, SMITH, STAPLES, WOOD, HAND, SIMPSON, LEONARD, DODGE, and MILLAID (*Secretary*).

It is the duty of the faculty of this college to test and ascertain by examinations, experiments, and other appropriate means the qualifications, proficiency, and skill of all candidates for degrees in medicine and surgery, and to recommend them to the Board of Regents for graduation accordingly.

No instruction is offered in this college. The faculty is an examining body solely.

In the college of medicine there are two terms in each year; the September term beginning with the opening of the university year, the April term beginning on the third Monday in April..

The entrance and scientific examinations take place in the September term; the professional examinations in the April term.

Enrollment regularly take place at the September term upon completion of the entrance examinations, but candidates entitled to be excused from this and the scientific examinations may be enrolled at the opening of the April term.

No person not enrolled is admitted to the professional examinations. All enrolled students are expected to report in person or in writing at the beginning of every April term until graduation. Candidates not so reporting may be dropped from the rolls.

EXAMINATIONS.

These are:

I. THE ENTRANCE EXAMINATION.

The entrance examination takes place at the September term in connection with the general examinations conducted under direction of the general faculty for admission to the University.

The entrance examination embraces the following subjects:

(1.) The English Language, including Grammar, Analysis and Composition.
(2.) Arithmetic, Elementary Algebra, and Plane Geometry.
(3.) Geography, United States History, and the outlines of General History.
(4.) Latin Grammar and Cæsar's Commentaries (or any one Latin author), or an equivalent knowledge of German, French, or one of the Scandinavian languages.

The examination certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects, and the holder is accordingly excused from further examination therein.

After passing the entrance examination the candidate is entitled to apply for enrollment in the college of medicine.

II. THE SCIENTIFIC EXAMINATION.

The scientific examination follows immediately after enrollment in the September term, and embraces the following subjects:

(1.) Physical Geography.
(2.) Natural Philosophy.
(3.) Elementary Botany.
(4.) Chemistry.
(5.) Drawing, free-hand or mechanical.

This examination is conducted by a committee of the general faculty, one of whom must be a professor of this college.

The certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects except chemistry, in which greater proficiency is required.

Applicants who bring a final certificate for the scientific course of the collegiate department (end of Sophomore year) are excused from the scientific examination as well as the entrance examination.

Applicants who bring a final certificate for the classical or modern courses of the collegiate department are excused from the entrance examination and the scientific examination except in chemistry.

Baccalaureates of the colleges of science, literature, and the arts, of mechanic arts and of agriculture in this University, and graduates of any reputable college or university are excused from the entrance and scientific examinations, and receive credit of one year on professional study.

The entrance and scientific examinations are conducted in writing, according to the rules and methods in use in the collegiate department of the University.

III. THE PROFESSIONAL EXAMINATION.

FIRST,—*Examinations for Bachelor of Medicine.*

These take place only in the April term of each year. They are divided among the following nine departments:

(1.) Anatomy and Physiology.
(2.) Pathology.
(3.) Materia Medica and Therapeutics.
(4.) Medical Chemistry.
(5.) Preventive medicine, personal and public hygiene.
(6,) Practice of medicine.
(7.) Surgery.
(8.) Obstetrics and diseases of women and children.
(9.) Diseases of the nervous system and medical jurisprudence.

The examinations have for their object to test:

1st. The candidates familiarity with the literature of the subject.

2d. His clinical and laboratory experience. For this purpose, properly authenticated specimens of his work in any department will be examined, and he may submit certificates and other evidence thereof.

3d. His skill in the actual use of physical, chemical, and other tests in diagnosis and the use of remedies and instruments.

It is understood in all cases that the candidate is prepared for examination on the text-book advised for each department; for which, see list of text and reference books in this announcement.

The following statements summarize the requirements in each of the nine general departments into which the whole science and art of medicine is divided:

I. ANATOMY AND PHYSIOLOGY.

1. *Anatomy.* Evidence of having dissected or performed autopsies.

Properly authenticated preparations, wet, dry, or microscopic, may be submitted.

Demonstration of such anatomical material as may be submitted for the purpose.

Histology and regional anatomy.

2. *Physiology.* Demonstration of normal tissues and products, and the relation of the living body to its environments.

II. PATHOLOGY AND PATHOLOGICAL ANATOMY.

The demonstration of specimens submitted for examination, and the examination of cases for the diagnosis of morbid conditions.

The use of chemical agents and the microscope to this end.

III. MATERIA MEDICA AND THERAPEUTICS.

1. *Materia Medica.* The demonstration of drugs and their preparations from examples submitted.

Practical pharmacy in the preparation and dispensing of medicines.

Prescription making, writing, and filling.

I. *Therapeutics.* Indications for the use of drugs or other remedies; their physiological action.

IV. MEDICAL CHEMISTRY.

Demonstration by the use of chemical agents of normal and diseased products.

The chemistry of drugs, foods and poisons.

V. PREVENTIVE MEDICINE.

The physical and chemical relations of rocks and soils to water supply, drainage, and the disposal of refuse matters.

1. Meteorology; the relations of atmospheric conditions to health, and the use of apparatus.

2. Sanitary Mechanics; water and air supply and their mechanical purification; ventilation, lighting and heating of inhabited buildings.

Chemistry and microscopy, as aids to the determining the character and purity of air, water and food supply.

Preventible diseases, infectious diseases, etiology, disinfectants.

Hygiene, or the art of prolonging life in health; dangerous or offensive matter.

Public health legislation as respects duties of citizens and physicians.

Vital statistics.

VI. PRACTICE OF MEDICINE.

The diagnosis, prognosis and prescription for cases of disease submitted.

The use of methods and instruments for diagnosis; the clinical examination and record of cases.

Properly authenticated work of this kind by the candicate may be submitted.

VII. SURGERY, INCLUDING SURGICAL PATHOLOGY.

Diagnosis, prognosis and prescription for cases submitted.

The use of instruments and apparatus.

Methods of arriving at knowledge of pathological condition, as also for alleviation or cure.

VIII. OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

The physiolygy of pregnancy and child birth as natural processes.

Diagnosis and treatment of abnormal conditions in mother or child. Labor, natural and abnormal; diagnosis and treatment. Postpartum conditions and dangers; surgery of women and diseases incidental to the sex.

The use of instruments and apparatus.

IX. DISEASES OF THE NERVOUS SYSTEM, AND MEDICAL JURISPRUDENCE.

1. *Diseases of the Nervous System.* Examination and report upon cases. Use of instruments and apparatus.
2. *Medical Jurisprudence.* Examinations of and reports on cases.

The law respecting insanity, the construction and management of hospitals for the care of the insane; with means to that end.

In addition to the examination above, an opportunity will be given for special examinations in diagnosis and treatment of diseases of the eye, ear, skin, nervous system, and in forensic medicine, as departments of general practice.

A special examination is provided for such graduates in medicine as wish to prepare themselves for the functions of health officers in the state. It will include the use of a text book and collateral reading, and will demand on the part of the candidate a familiarity with the subjects of the examination for preventive medicine, as above noted, and greater actual experience in the control of preventible disease, the processes of water, air, and food analysis, and the principles and construction of systems of water supply, sewage disposal, and the administration of sanitary law.

TEXT BOOKS.

The books named are, as a rule, those already selected by the best American colleges of medicine. They are given as an aid to students. The faculty advise the use of *one* book as a text book and if it can be interleaved it should contain notes or reference to other books, pamphlets articles which have been read on the same subject. The examinations in text-books will be in those noted as such in the following list. Additional information will add to the student's standing:

Text Book.	*Collateral Reading.*
	ANATOMY.
Gray.	Quain. Holden's Manual. Holden's Landmarks. Frey's Histology. Wilson.
	PHYSIOLOGY.
Dalton.	Yeo. Carpenter. Flint. Foster.
	PATHOLOGY.
Greene's Pathology and Morbid Anatomy.	Wagner's General Pathology. Cornil and Ranvier's Pathological Histology. Virchow's Post Mortems. Rindfleisch's Elements of Pathology. Orth's Diagnosis in Pathological Anatomy. Billroth's Surgical Anatomy.
	MATERIA MEDICA.
Biddle's Materia Medica.	Maisch: Manual of Organic Materia Medica. U. S. Dispensatory.

THERAPEUTICS.

Text Book.	*Collateral Reading.*
Ringer's Therapeutics.	H. C. Wood's Materia Medica and Therapeutics. Stille's Therapeutics and Materia Medica. Bartholows Therapeutics.

MEDICAL CHEMISTRY.

Reese's Manual of Toxicology.	Taylor on Poisons. Green's Manual. Flint or Tyson on Urine.

PREVENTIVE MEDICINE.

Wilson's Hand Book.	Richardson's Preventive Medicine. Water Analysis Wanklyn's. Food Adulteration Hassall's. Arnold, Nouveax Elements d'Hygiene. Bouchardat, Traite d'Hygiene. Parke's Manual. Fox: Sanitary Examinations of Water, Air and Food.

PRACTICE OF MEDICINE.

Flint's Practice.	Bartholow's Practice. Roberts' Hand Book. Flint's Clinical Medicine. Niemeyer's Text Book. Aitken's Practice. Reynold's System (by Hartshorn.) DaCosta's Medical Diagnosis.

SURGERY.

Agnew.	Van Buren and Keyes. Holmes. Smith. Bryant. Gouley. Billroth. Erichsen. Gross.

OBSTETRICS.

Lusk's Manual.	Cazeau's Midwifery. Barnes' Fairplay. Obstetric Operations.

DISEASES OF WOMEN AND CHILDREN.

Thomas : Diseases of Women. Smith : Diseases of Children.	Emmet. Meigs and Pepper's Diseases of Children. Day's Diseases of Children.

DISEASES OF THE NERVOUS SYSTEM.

Hamilton A. Mc.	Mitchell's Manual. Buckerill and Lake's Hammond.

MEDICAL JURISPRUDENCE.

Taylor's Manual by Reese (last edition).	Taylor's Principles and Practice Medical Jurisprudence. Wormley's Micro-Chemistry of Poisons.

The examinations for the degree of bachelor of medicine are conducted in writing, but may be supplemented, at the discretion of the examiner in any case, by oral interrogations.

As prerequisite to admission to the professional examinations of the first year, each candidate must furnish—

(1.) A certificate of attendance upon one full course of lectures in some recognized college of medicine or in a school of medical instruction.

(2.) A certificate of dissection of the muscular, nervous, and circulatory systems, with the contents of the cavities of the head, throat, and abdomen.

STANDING PROGRAM FOR WRITTEN EXAMINATIONS.

	FIRST YEAR.	SECOND YERR.	THIRD YEAR.
	Monday.	*Wednesday.*	*Friday.*
9:30 A. M.	Anatomy.	Pathology.	Surgery.
1:30 P. M.	Physiology.	Obstetrics.	Surgery Clinical.
	Tuesday.	*Thursday.*	*Saturday.*
9:30 A. M.	Medical Chemistry.	Dis. of Women and Child.	Practice.
1:30 P. M.	Materia Medica, and Therapeutics.	Dis. Nervous System, and Medical Jurisprudence.	Practice Clinical.
			Monday.
9:30 A. M.			Preventive Medicine.

Written examinations are in such form as to admit of convenient preservation. The detailed regulations for conducting these examinations are made known at the opening.

Examinees conform to requirements intended to protect them against suspicion or suggestion of having submitted answers not their own production on the spot.

Any person detected in any dishonesty in his examination is at once stricken from the roll of candidates.

The final examinations for the degree of M. B. begin on Monday, in the first week of the April term, at 9:30 A. M.

These examinations are, in part, oral, and a stenographic report of them is made. They include practical and clinical tests, and use of instruments and apparatus, intended to assure the examiners of the candidate's qualifications for the practice of his profession.

SECOND,—*Examinations for the degree of Doctor of Medicine.*

This examination consists in each case essentially of a thesis and its defense, but the faculty will demand in all cases clinical and practical tests and operations, which shall enable the examiners to decide not merely upon the scholastic proficiency of the candidates, but upon their actual professional skill.

All theses must be on subjects approved by the faculty, must be founded on original work and certified as the unaided productions of the candidates. Twenty-five printed copies of each thesis must be furnished to the faculty before reading and defense.

All theses to be defended in the April term must be submitted to the dean of the faculty on or before the second Monday in March. It is advised that the type-writing machine be used for making the copy. The printed copies required to be made after approval of the theses, shall be on the same size paper as this pamphlet, and the paper shall be white and of the quality as good as that used by the State of Minnesota. The size of the page shall be 22x38 ems, pica.

The faculty will make a calendar of theses, and publish the same on the fourth Monday in April term (second Monday of term).

GRADUATION.

Graduation takes place at the annual commencement of the University, near the first of June.

All candidates who pass the entrance, scientific, and professional examinations, including the appropriate clinical and experimental tests incidental thereto, and give satisfactory evidence of having attended three full courses of instruction, of not less than twenty weeks each, at a college of medicine or school of medical instruction recognized by the regents upon the recommendation of this faculty, and who are twenty-one years of age or upwards, and of good moral character, are recommended by the faculty of the college to the board of regents to receive the degree of Bachelor of Medicine (M. B.), which degree duly conferred is the warrant of the University of Minnesota for the practice of medicine and surgery.

All candidates for the first degree must furnish satisfactory evidence that they have severally pursued the study of medicine for four years in the office of and under the personal direction of a physician in active practice, who is a graduate of some college or school of medicine recognized by the board of regents upon the recommendation of the faculty of this college.

Provided, however, that

(1) One course of lectures, with other work incidental thereto, in

a college of medicine recognized as above, shall be reckoned as equivalent to eight months of such study.

(2) One term of six months in a school of medical instruction, organized and conducted in conformity with the by-laws, shall be equivalent to one year of such study under a preceptor.

(3) Three courses of lectures, with work incidental thereto, in a college of medicine recognized as above, shall be equivalent to three years study under a preceptor. One year at least, must, in all cases, have been passed in a preceptor's office;

(4) Graduates of colleges and universities receive a credit of one year on professional study, in consideration of superior literary and scientific attainments.

Any Bachelor of Medicine of this University who furnishes satisfactory evidence that he has been actively engaged in professional practice for three years after his graduation, and who presents and defends a thesis in the manner prescribed, is recommended to receive the degree of Doctor of Medicine (M. D.)

Whenever the examinations for thc bachelor's degree in any case evince great proficiency in the literature, theory, and practice of medicine the faculty of the college permit the candidate to present and defend a thesis; this being done to their satisfaction they recommend the candidate to receive at once the full degree of Doctor of Medicine (M. D.)

Doctors of medicine of other colleges of medicine recognized by the board of regents upon the recommendation of the faculty of this college, are recommended to receive the degree of Doctor of Medicine of this University upon successfully defending a thesis in the manner prescribed.

Any graduate so desiring may receive a statement showing the credit marks obtained by him in his several examinations.

During the year ending with the annual examinations in April, seventeen persons applied for examination. Of this number fifteen were for the degree of M. B., and two for branches of first year's examinations. Two of the fifteen evinced sufficient knowledge in literature and medicine to entitle them to the degree of M. B. They were Karl Henry E. Castle, of St. Paul, and Willard Byther Pineo, of Minneapolis.

All communications pertaining to this department should be addressed to the secretary, P. H. MILLARD, Stillwater, Minn.

GRADUATES.

MASTERS OF ARTS, 2.

Rev. Graham Cox Campbell, B. A. 1879,	Gaboon Mission, Africa.	1880
Willis Mason West, B. A. 1879,	Duluth,	1881

MASTER OF SCIENCE, 1.

Robert Henry Crafts, B. S. 1877,	Minneapolis,	1882

BACHELORS OF ARTS, 73.

Warren Clark Eustis,	Hennepin County,		1873
Henry Martyn Williamson,	Nicollet	"	"
George Edwin Ricker,	Hennepin	"	1874
Andrew Russell Cass,	Canada,		1875
Julius Elliot Miner,	Goodhue County,		"
*Simon Peter Starritt.	Wright	"	"
John Sinclair Clarke,	Nova Scotia,		1876
John Corrin Hutchinson,	Dakota County,		"
William Edward Leonard,	Hennepin	"	"
Graham Cox Campbell,	Nova Scotia,		1877
Joel Nathaniel Childs,	Wisconsin,		"
Ebenezer Currie,	Fillmore County,		"
Frank Eustis,	Hennepin	"	"
Fred Eustis,	"	"	"
Stephen Mahoney,	Scott	"	"
John Waldo Perkins,	Wright	"	"
Charles Wilber Savidge,	LeSueur	"	"
Albert McClure Welles,	Ramsey,	"	"
Julian Clarence Bryant,	Nicollet	"	1878
John Hamilton Lewis,	Wright	"	"
Thomas Rogers Newton,	Hennepin	"	"
Evan Roland Prichard,	Blue Earth	"	"
Daniel Williams,	Iowa,		"

John Franklin Collom,	Hennepin County,	1879
Etta Medora Elliot,	" "	"
John Finley Goodnow,	" "	"
Frenk Smith McKean,	Washington "	"
Robert William Rhames,	Olmsted "	"
Chelsea Joseph Rockwood,	Blue Earth "	"
George Burt Thompson,	Hennepin "	"
Willis Mason West,	Stearns "	"
Cora Inez Brown,	Hennepin "	1880
James Francis Bryant,	Nicollet "	"
Albert William Rankin,	" "	"
Wm. Wadsworth Williams,	Iowa,	"
George Briggs Aiton,	Nicollet County,	1881
Samuel Gilmore Anderson,	Hennepin "	"
Otway Wilkinson Baldwin,	Wright "	"
*William Cullen Bryant.	Nicollet "	"
Herbert Oscar Chowen,	Hennepin "	"
Emily Louse Hough,	Pennsylvania,	"
Charles Edward Kent,	Ohio,	"
William Leslie King,	Blue Earth County,	"
Quinton John Rowley,	Freeborn "	"
Fred Beal Snyder,	Hennepin "	"
James Bennet Gould,	Hennepin County,	1882
Frank Healy,	Fillmore "	"
Andrew Franklin Hillyer,	Hennepin "	"
Carrie Warner Holt,	Fillmore "	"
*Lydia Rossiter Holt,	" "	"
Frances Ada Knox,	Blue Earth "	"
Frank Nichols Leavens,	Rice "	"
Alexander Hamilton Nunn,	Dodge "	"
Eli Milton Skiff Pickett,	Freeborn "	"
Charles Myron Webster,	Goodhue "	"
Jesse Craig Wilson,	Rice "	"
Edwand Payson Baldwin,	Dakota "	1883
William Eastman Fay,	Massachusetts,	"
Edson Starr Gaylord,	Hennepin County,	"
David Percy Jones,	" "	"
Joseph Henry Locke,	Stearns "	"
Helen Louise Pierce,	Olmsted "	"
Martha Alma Sheldon,	Hennepin "	"
Sumner Lincoln Trussell,	" "	"
Elmer Ellsworth Adams,	Vermont,	1884
Patrick Joseph Butler,	Hennepin County,	"
Oscar Firkins,	" "	"
Joseph Henry Capper Hutchinson,	Dakota "	"
Anthony Johnson,	Houston "	"
Eli Larson,	" "	"
Hannah Robie Sewall,	Ramsey "	"
Susan Winifred Sewall,	" "	"
Zenas Newton Vaughn.	Mower "	"

BACHELORS IN SCIENCE, 73.

Edward Chatfield,	Fillmore County,	1874
Samuel Addison Rank,	" "	1875
Clark Stewart,	Hennepin "	"
Martha Appleton Butler,	Maine,	1876
Robert Henry Crafts,	Hennepin County,	"
Lewis Singer Gillette,	Michigan,	"
Eugene Alvin Hendrickson,	Ramsey County,	"
William Herod Locke,	Hennepin "	"
Albert Preston Hendrickson,	Ramsey "	1877
*John Charles Kassube,	Hennepin "	"
Edwin Burnham, Pribble,	" "	"
Fred Leslie Couillard,	" "	1878
Nettie Getchell,	" "	"
Judson Torrey Howell,	Houston "	"
Henry Clay Leonard,	(B. C. E., '75,)	"
Mary Warwick Robinson,	Hennepin County,	"
Harvey J. Smith,	Goodhue "	"
Myron DeVere Taylor,	Stearns "	"
Wm. John Warren,	Rice "	"
Walter Barrett,	Dodge "	1879
Fred Capin Bowman,	Meeker "	"
Catherine Amelia Burnes,	Hennepin "	"
Timothy Edward Byrnes,	Meeker "	"
Evelyn May Champlin,	Hennepin "	"
*Addison Gage, Jr.,	Anoka "	"
Allen Jay Greer,	Wabasha "	"
Laura Alberta Linton,	" "	"
George Henry Partridge,	Winona "	"
Etta Thompson,	Hennepin "	"
*Frederick Gerald Berry,	" "	1880
Horace Burnham Greeley,	Blue Earth "	"
Clarence Luther Herrick,	Hennepin "	"
Robert Peter Andrew Nix,	Brown "	"
Minnie Aurora Reynolds,	Clay "	"
Alva Lucius Roe,	Washington "	"
Gilman Walter Smith,	Goodhue "	"
Harvey Page Smith,	" "	"
Lillian Sanborn Todd,	Hennepin "	"
Fred Lesile Bardwell,	" "	1881
*Herbert John Broughton,	" "	"
Diana Burnes,	" "	"
George Sutherland Grimes,	" "	"
James Jennison,	Goodhue "	"
David Albert Locke,	Hennepin "	"
Samuel Allen Locke,	" "	"

Sarah Ellen Palmer,	Mower County,	1881
William Hines Savidge,	LeSueur "	"
Lilla Ruth Williams,	Blue Earth "	"
George Joseph Backus,	Goodhue "	1882
William Wyckoff Clark,	Blue Earth "	"
Alice Elizabeth Demmon,	Vermont	"
Carrie Delania Fletcher,	Ramsey County,	"
William Beans Linton,	Wabasha "	"
Henry Francis Nachtrieb,	Washington "	"
Rasselas Hamlin Prosser,	Fillmore "	"
Herbert Paine Shumway.	" "	"
Edward Duffield Neill Whitney,	Hennepin "	"
Robert Mowry Bell,	" "	1883
Frederick Henry Clark,	Massachusetts,	"
Louise Elma Hollister,	Lincoln County,	"
Edward Corydon Jones,	Hennepin "	"
George Nelson Salisbury,	Rice "	"
Charles, Frederic Sidener,	Goodhue "	"
Emma Jane Ware,	Fillmore "	"
Nathan Morton Baker, Jr.,	Nicollet "	1884
Jeremiah Ignatius Donohue,	Fillmore "	"
George Lorenzo Hendrickson,	Ramsey "	"
George Horace Klepper,	Freeborn "	"
Bessie Laythe,	Fillmore "	"
James Eugene Manchester,	Steele "	"
Henry Hastings Sibley Rowell,	Hennepin "	"
Charles Christian Schmidt,	Brown "	"
Emma Zwinggi,	Nicollet "	"

BACHELORS IN LITERATURE, 44.

Helen Mar Ely,	Winona County,	1875
Matilda Jane Campbell,	Maine,	1877
Viola Fuller,	Mower County,	"
*Charlotte Adelaide Rollit,	Hennepin "	"
Mary Anna Maes,	Steele "	"
George Albert Wood,	Fillmore "	1878
William Lincoln Bassett,	Hennepin "	1879
Alvin Hildreth,	Freeborn "	"
William Winchester Keysor,	Blue Earth "	"
Marion Hooker Roe,	Washington "	"
Caroline Rollit,	Hennepin "	"
Martha Isabel West,	" "	"
Andrew Holt,	Carver "	1880
Joseph Elisha Horton,	Fillmore "	"
Lizzie Augusta House,	Hennepin "	"
Bessie Summer Lawrence.	" "	"

Harlow Horace Bonniwell,	McLeod County,	1881
Margaret Agnes Campbell,	Nova Scotia,	"
Lettie May Crafts,	Hennepin County,	"
Emma Elizabeth Grimes,	" "	"
William Edmund Harrington,	McLeod "	"
Emma Ernestine Maes,	Steele "	"
Bradley Phillips, Jr.,	Wisconsin,	"
Agnes Virginia Bonniwell,	McLeod County,	1882
Grace Webster Curtis,	Iowa,	"
Arthur Edwin Dickerman,	"	"
Marie Louise Henry,	Hennepin County,	"
Mary Eliza Holt,	Fillmore "	"
Mary Nancy Hughes,	Hennepin "	"
Richard Hartwell Johnson,	Winona "	"
Louie Lillian Kilbourn,	Hennepin "	"
Emily Dana McMillan,	" "	"
*Ada Eva Pillsbury,	" "	"
Harry Amy Strong,	Iowa,	"
Samuel Doak Catherwood,	Mower County,	1883
Annie Harriet Jefferson,	Hennepin "	"
Kate Louise Kennedy,	" "	"
Sarah Pierrepont McNair,	" "	"
Anna Calista Marston,	" "	"
Jenet Nunn,	Dodge "	"
Emma Frances Trussell,	Hennepin "	"
Anna Helen Bonfoy,	Hennepin "	1884
Belle Marion Bradford,	Dakota "	"
Adalyna Kingsbury,	Michigan,	"

BACHELORS IN CIVIL ENGINEERING, 13.

Henry Clay Leonard,	Fillmore County,	1875
Samuel Addison Rank,	" "	"
Clark Stewart,	Hennepin "	"
Lewis Singer Gillette,	Michigan,	"
Eugene Alvin Hendrickson,	Ramsey County,	"
Charles Edward Thayer,	Hennepin "	"
William Sanborn Dawley,	Wabasha "	1879
Pierce Power Furber,	Washington "	"
William George Peters,	Hennepin "	1883
Louis Orville Smith,	Le Sueur "	"
William Ricketson Hoage,	Olmsted "	1884
George John Loy,	Carver "	"
Irving Webber Matthews,	Rock "	"

BACHELORS IN MECHANICAL ENGINEERING.

Charles Spencer Bushnell,	Hennepin County,	1878
John Henry Barr,	Blue Earth "	1883

BACHELOR IN ARCHITECTURE.

Walter Stone Pardee,	Hennepin County,	1877

BACHELOR IN AGRICULTURE.

William Johnson Barrett,	Dodge County,	1882

CERTIFICATE IN CIVIL ENGINEERING.

Alexander Martin Holcomb,	Hennepin County,	1883

BACHELORS OF MEDICINE.

James Kidd Simpson,	Manitoba,	1884
Hugo Speier,	Scott County,	"

APPENDIX.

An Act for the Encouragement of Higher Education.

Be it enacted by the Legislature of the State of Minnesota:

SECTION 1. The governor, superintendent of public instruction, and the president of the University of Minnesota, *ex-officio*, are hereby constituted a board of commissioners on preparatory schools for the encouragement of higher education in this State. This board shall be called the "High School Board," and shall perform the duties, and have and exercise the powers hereinafter mentioned.

SEC. 2. Any public graded school * * * which school shall give preparatory instruction according to * * * this act, and shall admit students of either sex from any part of the State without charge for tuition, shall be entitled to receive pecuniary aid * * * Provided, etc.

SEC. 3. The said board shall require of the schools * * * compliance with the following conditions, to-wit:

FIRST. That there be regular and orderly courses of study, embracing all the branches pre-requisite for admission to the collegiate department of the University of Minnesota.

SECOND. That the said schools * * * shall at all times permit the said board of commissioners, or any of them, to visit and examine the classes pursuing the said preparatory courses.

SEC. 4. Requires inspection, report, and approval before payment of money.
SEC. 5. Appropriates $23,000 annually—$400 to each approved school.
SEC. 6. Requires members to serve without compensation, but pays expenses.
SEC. 7. Grants power to make all necessary and suitable rules and regulations.
SEC. 8. Requires records and an annual report.
SEC. 9. This act shall take effect, &c, Approved March 3, 1881.

The high school board was duly organized under this law, May 20, 1881, by the adoption of a resolution declaring that "the governor of the State shall be president, the superintendent of public instruction shall be the secretary, and the president of the State University shall have charge of all examinations required under this act."

A supplementary act, approved November 18, 1881, further provides that the high school board shall have full discretionary power to consider and act upon applications of schools for state aid, and to prescribe the conditions upon which said aid shall be granted, but not more than three schools shall be aided in each county in any one year.

A system of examinations on the studies of the "University preparatory course," as prescribed by the board, has been organized on the following plan: Two examinations are held during the year, the first beginning on the last Monday in February, and the second on the last Monday in May. Principals make requisition to the examiner for questions. These are sent to the clerk of the school board, from whom the principal obtains them on the morning of the examination. The envelopes containing the questions are kept sealed until the class is ready for work. The answers having been written, read and marked by the superintendent or principal, are transmitted to the examiner of the board, by whom they are finally examined, marked, and recorded. Every pupil passing the examination in any study, receives through his principal a certificate on which is printed the following endorsement: "On applying for admission to the UNIVERSITY OF MINNESOTA, present this certificate, and you will be excused from examination in the study named."

The high school board have further extended the advantages of their examination system to ALL high schools, normal schools, and academies of the State, and the board of regents have authorized the acceptance by the University of all high school board certificates duly awarded to their students.

General correspondence should be addressed to the secretary, Hon. D. L. Kiehle, State Superintendent, St. Paul, Minn.

Correspondence relating to examinations only should be addressed to Cyrus Northrop, President of the University of Minnesota, Minneapolis, Minn.

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LÉTOILE DU NORD

THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1885-1886.

THE UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1885-86.

☆ UNIV. OF MIN.

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* * *

The Annual Calendar, published at Commencement by authority of the Board of Regents, is a record of the membership and condition of the University for the given University year, and also contains the courses of study and other announcements for the University year following.

The Calendar will be sent gratuitously, postage paid, to all persons who apply for it.

* * *

Johnson, Smith & Harrison, Printers, Minneapolis.

THE

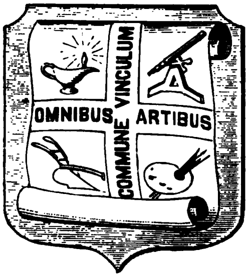
UNIVERSITY OF MINNESOTA.

THE

CALENDAR

FOR THE YEAR

1885-86



BY THE UNIVERSITY.

MINNEAPOLIS.

1886.

THE NEW YORK
PUBLIC LIBRARY
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ALMANAC.

1886.

SEPTEMBER.

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CALENDAR.

886		
ıg. 31	Tuesday	Year of 1886-87 begins. Entrance examinations, 9:00 A. M.
pt. 1	Wednesday	Entrance examinations concluded.
pt. 2	Thursday	Examinat'ns for advanced rank and condit'ns.
pt. 3	Friday	“ “ “ “
pt. 7	Tuesday	Recitations and lectures begin.
›v. 4	Thursday	Examinations for conditions—all classes.
›v. 23	Tuesday	Term examinations.
›v. 24	Wednesday	“ “
›v. 25	Thursday	Thanksgiving day. 1st term ends 13th week.

ıv. 30	Tuesday	Second term begins.
c. 24	Friday	Recess begins.

WINTER VACATION.

887		
n. 4	Tuesday	Work of second term resumed.
b. 10	Thursday	Examinations for conditions—all classes.
b. 22	Tuesday	Term examinations.
b. 23	Wednesday	“ “
b. 26	Saturday	Second term ends - - 25th week.

ır. 1	Tuesday	Third term begins.
ıy 5	Thursday	Examinations for conditions—all classes.
ıy 10	Tuesday	Senior examinations.
ıy 11	Wednesday	“ “
ıy 20	Friday	Term examinations.
ıy 21	Saturday	“ “
ıy 23	Monday	Field day.
ıy 24	Tuesday	Senior class day.
ıy 25	Wednesday	Alumni day.
ıy 26	Thursday	Commencement. - - 38th week.

ıy 31	Tuesday	Entrance examinations.
ne 1	Wednesday	“ “

ıg. 30	Tuesday	Entrance examinations.
ıg. 31	Wednesday	“ “
pt. 1	Thursday	Examinations advanced rank.
pt. 2	Friday	“ “ “
pt. 6	Tuesday	Recitations and lectures begin year 1887-88.

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CYRUS NORTHROP, LL. B., MINNEAPOLIS, The President of the University.	*Ex-Officio*

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and in charge of the department of Latin.

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State Geologist and Curator of the General Museum.

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Professor of Preventive Medicine.

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Professor of the German Language and Literature.

Christopher W. Hall, M. A., 727 *University Ave. S. E.*
Professor of Geology, Mineralogy and Biology.

John C. Hutchinson, B. A., 3806 *Nicollet Ave.*
Assistant Professor of Greek and Mathematics.

John S. Clarke, B. A., 1222 *Fifth Street S. E*
Assistant Professor of Latin.

Matilda J. Wilkin, B. L., 1413 *University Ave. S. E.*
Instructor in English and German (absent in Europe).

Maria L. Sanford, 1401 *Sixth Street S. E.*
Professor of Rhetoric and Elocution.

William A. Pike, C. E., 2525 *University Ave. S. E.*
Professor of Engineering and in charge of Physics.

John F. Downey, M. A., C. E., 801 *Seventh Street S. E.*
Professor of Mathematics and Astronomy.

James A. Dodge, Ph. D., 813 *Fifth Street S. E.*
Professor of Chemistry.

Charles W. Benton, B. A., 419 *Eighth Ave. S. E.*
Professor of the French Language and Literature.

Edward D. Porter, M. A., *Experimental Farm.*
Professor of the Theory and Practice of Agriculture.

Franklin Staples, M. D., *Winona.*
Professor of the Practice of Medicine.

Daniel W. Hand, M. D., *Saint Paul.*
Professor of Surgery.

William H. Leonard, M. D., *Minneapolis.*
Professor of Obstetrics and Diseases of Women and Children.

Perry H. Millard, M. D., *Stillwater.*
Professor of Anatomy and Physiology.

Thomas Peebles, B. A., 425 *Fifth Street S. E.*
Instructor in Mental and Moral Philosophy and Logic.

O. J. Breda, 1320 *Fifth Street S. E.*
Professor of the Scandinavian Languages and Literatures.

George Edwin MacLean, Ph. D., 1100 *Fifth Street S. E*
Professor of the English Language and Literature.

Charles E. Smith, M. D., *Saint Paul.*
Professor of Materia Medica and Therapeutics.

George W. Wood, M. D., *Faribault.*
Professor of Diseases of the Nervous System, and of Medical Jurisprudence.

Charles Simpson, M. D., *Minneapolis.*
Professor of Pathology.

Charles F. Sidener, B. S., 1202 *Fourth Street S. E.*
Instructor in Chemistry.

Henry F. Nachtrieb, B. S,, 1120 *Fourth Street S. E.*
Assistant Professor of Biology.

Harry P. Judson, M. A., 1100 *Fifth Street S. E.*
Professor of History and Lecturer on Pedagogics.

Frederick S. Jones, *University Ave. S. E.*
Instructor in Physics.

William R. Hoag, B. C. E., 1219 *Fourth Street S. E.*
Instructor in Civil Engineering.

John H. Barr, B. M. E., 213 *Fifth Ave. S. E.*
Instructor in Mechanical Engineering.

OTHER OFFICERS.

Lettie M. Crafts, B. L., 610 *Fifth Street S. E.*
Assistant Librarian.

Frank A. Johnson, 622 *Fourteenth Ave. S. E*
Registrar.

John E. Gallow, *Main Building.*
Janitor.

Edwin Anthony Cuzner. 214 *State Street S. E.*
Superintendent of the Plant Houses.

STUDENTS.

Alphabetical Roll By Classes, 1885-'86.

I. GRADUATE STUDENTS. 25

Howard Strickland Abbott, B. L., '85,	University of Minnesota.
Adolphus Marian Allen, B. S., '83,	Iowa College.
—Mary A. Bye, B. A., '85,	Carleton College.
Timothy Edward Byrnes, B. S., ‘79,	University of Minnesota.
Harold Colton Chapin, B. A., 81,	Beloit.
Sampson Reed Childs, B. A. '84,	Bowdoin.
—Joanna Disbro [Crawford]. B. S. '75,	Iowa Wesleyan University.
Charles Burke Elliott, LL. B., '81,	University of Iowa.
Edward C. Gale, B. A., '84,	Yale.
Harlow S. Gale, B. A., '85,	Yale.
Rev. A. J. Graham, B. D.,	Seabury.
James Gray, B. S., '85,	University of Minnesota.
—Laura Alberta Linton, B. S., '79,	“ “
Oscar William Oestlund, B. A.	Augustana College.
Milton Pickett, B. A., '82,	University of Minnesota.
Rev. J. W. Prosser, B. D., '79,	Nashotah.
Jay Walter Richardson, B. A., '81,	Amherst.
Morris John Riggs, B. S.,	Iowa University.
—Marion Hooker Roe, B. L. '79,	University of Minnesota.
George Nelson Salisbury, B. S., '83.	“ “
Charles Frederick Sidener, B. S., '83,	“ “
—Emma Frances Trussell. B. L., '83,	“ “
Sumner Lincoln Trussell. B. A., '83,	“ “
—Matilda Jane Campbell [Wilkin], B. L., '77,	“ “
—Emma Jane Ware, B. S., '83,	“ “

II. UNDERGRADUATE STUDENTS, 381.

SENIOR CLASS, 18.

Adams, John William,	Lake City,	Classical.
—Amy, Jennie May,	Minneapolis,	Modern.
Bennett, John William,	Montrose,	Scientific.
Crafts, Leo Melville,	Minneapolis,	Modern.
Crane, Fremont,	Mapleton,	Scientific.
—Elwell, Mary Whitmore,	Minneapolis,	Scientific.
Grannis, Henry James,	High Forest,	Classical.
Johnson, Frank Amos,	Marshall,	Scientific.
Kennedy, Joseph,	Oshawa,	Scientific.
—Kiehle, Ada May,	Minneapolis,	Modern.
King, James Charles Elliot,	Otsego,	Classical.
—Lyall, Maud Julia,	Minneapolis,	Modern.
—Marrs, Josephine Florence,	Minneapolis,	Modern.
—Powell, Mary Alden,	Minneapolis,	Modern.
—Sewall, Elizabeth Quincy,	St. Paul,	Classical.
—Ware, Lillian Lincoln,	Brownsdale,	Scientific.
Webster, William Franklin,	Clearwater,	Classical.
Woodmansee, Charles Comstock,	Minneapolis,	Architecture.

JUNIOR CLASS, 28.

Bassett, Franklin Harley,	Glyndon,	Scientific.
Burnell, George Edwin,	Minneapolis,	Modern.
Cross, Norton Murdock,	Minneapolis,	Scientific.
Croswell, Thomas Henry,	St. Paul,	Scientific.
Dinsmoor, Adelbert Orsman,	Austin,	Scientific.
Emery, Elwood Allen,	Minneapolis,	Modern.
Gilman, Joshua Ethan,	Wasioja,	Classical.
Gould, Alfred Burt,	Wasioja,	Classical.
Graham, Christopher,	Rochester,	Scientific.
Hammond, George Harry,	Lake City,	Classical.
Hawley, John Blackstock,	Red Wing,	Scientific.
Hinshaw, Jesse Doddridge,	Minneapolis,	Scientific.

Hinshaw, Millard Everett,	Minneapolis,	Classical.
Jennison, Paul,	Red Wing,	Scientific.
Lamoreaux, Lowell Andrew,	Minneapolis,	Scientific.
Lamoreaux, Milton Sprague,	Minneapolis,	Scientific.
McKenzie, Ralph Murdoch,	Anoka,	Classical,
McKinney, Edwin Arthur,	Crow River,	Scientific.
McKinney, Everson Ryder,	Crow River,	Modern.
Milliken, William Patton,	Lake City,	Scientific.
Olsen, Ingerval M.,	St. Peter,	Scientific.
Reed, Melville Emerson,	Hastings,	Scientific.
Rosselot, Joseph Henry,	Faribault,	Classical.
Rowell, Warren Cogswell,	Winona,	Scientific.
--Smith, Mary Isadore,	Minneapolis,	Modern.
Stacy, Francis Newton,	Monticello,	Classical.
Winterer, Edward,	Le Sueur.	Modern.
Wolff, Louis Peter,	Red Wing,	Civil Engr'g.

SOPHOMORE CLASS, 39.

Anderson, Josiah Moore,	Washburn,	Scientific.
--Baker, Lucy Lloyd,	Minneapolis,	Modern.
Benson, Percival Ramsey,	Anoka,	Classical.
Bierbauer, Bruno,	Mankato,	Scientific.
—Blanchard, Mary Lizzie,	Zumbrota,	Modern.
Brewster, Henry Webb,	Minneapolis,	Classical.
Butts, Edmund Luther,	Stillwater,	Scientific.
Coe, Clarence Stanley,	Iowa City, Ia.,	Scientific.
Cook, Henry Elmer,	Fairpoint,	Scientific.
--Countryman, Grace,	Minneapolis,	Scientific.
Fillmore, Albert Ernest,	Minneapolis.	Classical.
--Firkins, Ina,	Minneapolis,	Modern.
Germo, Severt,	Medo,	Modern.
—Gideon, Florence Ellen,	Excelsior,	Modern.
Gilman, John Calvin,	Wasioja,	Scientific.
Graber, Albert,	Minneapolis,	Classical.
Grant, Ulysses Sherman,	Minneapolis,	Scientific.
—Hays, Amy Naomi,	Minneapolis,	Classical.
Hobbs, Fred Ezra,	Winona,	Modern.
Johnson, Clarence John,	St. Peter,	Scientific.
Johnson, Elwin Bird,	Marshall,	Scientific.
Johnson, Rollin Erastus,	Medford,	Classical.
Mann, Arthur Teall,	Minneapolis,	Scientific.
Matteson, Sumner Warren, Jr.,	Decorah, Ia.,	Scientific.

r, Thomas Alfred,	Lake City,	Scientific.
s, John,	Bristol,	Scientific.
nstead, Susan Hawley,	New Haven, Ct.,	Modern.
lsbury, Sadie Belle,	Minneapolis,	Modern.
ter, Olivia Canby.	Minneapolis,	Modern.
llock, Anna,	Minneapolis.	Modern.
, Dow Samuel,	Minneapolis,	Scientific.
pson, Charles,	No. Yarmouth, Me.	Modern.
pson, Helmus Wells,	Wells,	Classical.
, Fred Downs,	Minneapolis,	Scientific.
ns, John Lucius,	Oakland,	Scientific.
hell, Luther,	Minneapolis,	Scientific.
ter, Charles Henry,	Clearwater,	Scientific.
rd, William Dodsworth,	Mankato,	Classical.
nchell, Ima Caroline,	Minneapolis,	Modern.

FRESHMAN CLASS, 47.

ethy, Frank Sherman,	Minneapolis,	Scientific.
ams, Alice Anna,	Minneapolis,	Modern.
s, Francis Henry,	Lake City,	Scientific.
, Charles Henry, Jr.,	Ft. Snelling,	Scientific.
ck, Earle Jay,	Minneapolis,	Scientific.
ck, Kendric Charles,	So. Brookfield, N.Y.	Modern.
er, Rebecca Virginia,	Minneapolis,	Modern.
er, Sibyl Belle,	Minneapolis,	Modern.
, Charles Edward,	Elk River,	Scientific.
y, William Whittelsey,	Minneapolis,	Classical.
h, Arthur Bliss,	Minneapolis,	Modern.
k, Wealthy Albreta,	Cannon Falls,	Modern.
n, Henry,	Prescott, Wis.,	Scientific.
hower, William James,	St. Peter,	Modern.
ell, Mattie Laura,	Minneapolis,	Modern.
, Albert Ames,	Hastings,	Scientific.
m, John Albert,	Minneapolis,	Scientific.
ngs, Arthur	Anoka,	Classical.
ngs, Thadeus Philander,	Anoka,	Scientific.
, John Paul,	Marion,	Scientific.
gan, Fannie Rogers,	Minneapolis,	Modern.
drix, Julia May,	Elk Horn, Wis.,	Scientific.
on, Charles William,	Brooklyn Centre,	Scientific.
, Frank Du Mars,	Minneapolis,	Scientific.
edy, James Ernest,	Minneapolis,	Scientific.

—Koenig, Herminia Rosalia,	St. Peter,	Modern.
Ladue. William Baker,	Salem, Oregon,	Classical.
Leary, William Joseph,	Owatonna,	Classical.
Lyon, Walter Henry,	Jamestown, D. T.,	Classical.
—McClary, Clara Heck,	Minneapolis,	Scientific.
McGregor, Lane,	Oxford, O.,	Classical.
—McMillan, Jessie,	Minneapolis,	Modern.
—McOuat, Margaret Jane,	Oshawa,	Scientific.
Meeds, Alonzo Draper,	Stillwater,	Scientific.
Moffett, Robert Leslie,	Minneapolis,	Scientific.
Sacre, Bertie Leverett,	Minneapolis,	Scientific.
Sargeant, Winthrop Webster,	Lake City,	Classical.
—Sewall, Margaret Louise,	St. Paul,	Classical.
Sheppard, Prosper Ernest,	Lakeside,	Scientific.
—Smith, Ada Emily,	Algona, Ia.,	Scientific.
Smith, William Carpenter,	St. Cloud,	Scientific.
—Stacy, Alice May,	Monticello,	Modern.
Stockwell, Walter Lincoln,	Anoka,	Scientific.
—Strohmeier, Lydia Kathrina,	Minneapolis,	Classical.
—Van Valkenburg, Mary Gertrude,	Minneapolis,	Modern.
Voge, Christopher Elisha,	Minneapolis,	Scientific.
—Waters, Helen Edith,	Minneapolis,	Modern.

SUB-FRESHMAN CLASS, 113.

—Abbott, Birdie,	Minneapolis,	Modern.
Abbott, Howard,	Minneapolis,	Scientific.
—Abernethy, Antoinette Judson,	Minneapolis,	Modern.
Allen, Edmund Pratt,	Minneapolis,	Scientific.
Anderson, Andrew Curtin,	Minneapolis,	Modern.
—Andrews, Hattie Louise,	Minneapolis,	Classical.
Baily, Henry Patterson,	Minneapolis,	Scientific.
Beach, William Artemus,	Minneapolis,	Scientific.
Beatty, Henry Wilson,	Arlington,	Scientific.
—Berry, Blanche Parker,	Minneapolis,	Modern.
—Blaisdell, Sarah Lilian,	Minneapolis,	Scientific.
—Bolton, Celeste Estelle,	Minneapolis,	Modern.
Bovey, John Henry,	Minneapolis,	Classical.
Brown, Henry Newton,	Albert Lea,	Scientific.
Brown, Walter Reynolds,	Minneapolis,	Classical.
Buell, Charles James,	Zumbro Falls,	Scientific.
Burt, John Lucius,	Minneapolis,	Scientific.
Butterfield, George Arthur,	Wasioja,	Classical.

ren, Walter Abram,	Chowen P. O.,	Scientific.
tianson, Peter,	Bath,	Scientific.
, George Archibald,	Eden Prairie,	Scientific.
mfort, Sarah Catherine,	Minneapolis,	Modern.
er, Charles Thompson,	New York, N. Y.,	Classical.
untryman, Lana Mariah,	Minneapolis,	Classical.
ll, Frank,	Minneapolis,	Scientific.
y, Edwin Lincoln,	Richfield,	Scientific.
y, Frank Noble,	Hastings,	Classical.
, Chas. Rollin Edw. Murray,	Forest City,	Scientific.
els, Jared Waldo,	St. Peter,	Scientific.
, Wilber Wainwright,	Minneapolis,	Scientific.
s, James Topham,	Bloomington,	Scientific.
y, Mary Belle,	Minneapolis,	Scientific.
nnison, Grace Etta,	Minneapolis,	Modern.
e, Warren Maynard,	Farmington,	Scientific.
l, Frank Newland,	Winona,	Scientific.
las, Fred Luke,	Jericho Center, Vt.	Scientific.
ns, Frank William,	Minneapolis,	Scientific.
, Fred John,	Chaska,	Scientific.
James Edward,	Monroeville, O.,	Modern.
s, John Culbert,	Minneapolis,	Classical.
, Harry Carlton,	Jamestown, D. T.,	Scientific.
ost, Flora Joy,	Jackson,	Modern.
erger, Lucien Earle,	Red Wing,	Classical.
iner, Edward Brown.	Minneapolis,	Scientific.
lbert, Priscilla Grace,	Minneapolis,	Modern.
t, James Colfax,	Minneapolis,	Scientific.
ager, William Fred,	Worthington,	Modern.
blin, Susie E.,	Minneapolis,	Modern.
com, Eugene,	Richfield,	Scientific.
is, Alfred James,	McCauleyville,	Scientific.
h, Henry Edwin,	Lake City,	Scientific.
len, John Foot,	Fargo, D. T.,	Scientific.
, William Hausmer,	Minneapolis,	Scientific.
ne, Charles Waldron,	Minneapolis,	Modern.
son, Henry,	Sauk Centre,	Scientific.
nes, Jennie Louise,	Minneapolis,	Scientific.
bach, Wesley Albert,	Ft. Howard, Wis.,	Scientific.
edy, Henry Martin,	Litchfield,	Scientific.
edy, Louis Henry,	Litchfield,	Classical.
ff, Muhlenberg Keller,	St. Paul,	Scientific.

Leeds, Warner Miflin,	Lisbon, D. T.,	Scientific.
—Lincoln, Florence May,	Minneapolis,	Modern.
Lindblade, John Albert,	Minneapolis,	Scientific.
Lum, Burt Frank,	Minneapolis,	Scientific.
—McOuat, Mary,	St. Peter,	Scientific.
Mann, Fred Maynard,	Minneapolis,	Scientific.
March, Harry John,	Minneapolis,	Scientific.
Mayall, Herschel James,	St. Paul,	Classical.
Miller, Andrew Lincoln,	Lake City,	Scientific.
—Mills, Mary,	Elk River,	Modern.
—Morin, Maggie Belle,	Albert Lea,	Scientific.
—Nelson, Ida Georgiana,	Alexandria,	Modern.
Nickerson, Fred William,	Elk River,	Scientific.
—Nicol, Jessie May,	Minneapolis,	Modern.
Nilson, Thorwald Eid,	Atwater,	Scientific.
Olds, Alfred Wadleigh,	St. Charles,	Classical.
—Parker, Margaret Blanche,	Minneapolis,	Modern.
Peterson, Albert Ludwig,	St. Peter,	Scientific.
Peterson, Charles Christian,	Newark, D. T.,	Scientific.
—Phillips, Edith Viola	Minneapolis,	Modern.
Pillsbury, Alfred Fisk,	Minneapolis,	Scientific.
—Pond, Scintilla Sexta,	Bloomington,	Scientific.
Prior, Joseph Hammon,	Minneapolis,	Scientific.
Richardson, Herbert Gilman,	Minneapolis,	Scientific.
Richardson, Oscar Kelsey,	Minneapolis,	Scientific.
—Roby, Mabel Augusta,	Minneapolis,	Modern.
Rutherford, Wm. Henry Andrew,	Rockford,	Modern.
Savage, Charles Albert,	St. Paul,	Classical.
Schlegel, Bruno H. W. F. von,	Minneapolis,	Scientific.
Segelbaum, Alfred Abraham,	Minneapolis,	Scientific.
—Smith, Bertha Stewart,	Minneapolis,	Modern.
Spaulding, Edward Martin,	Minneapolis,	Scientific.
Spottswood, Edward Whipple,	Minneapolis,	Scientific.
Stacy, Albert Wallace,	Washburn,	Scientific.
Stahler, Frederick Wiley,	Minneapolis,	Scientific.
Steel, Edwin Andrew,	Minneapolis,	Scientific.
Stout, Thompson Welliver,	Minneapolis,	Scientific.
—Sumbardo, Ava,	Hamline,	Modern.
Taylor, Henry Hurlbut,	Minneapolis,	Scientific.
Thomas, Nathaniel Seymour,	St. Paul,	Classical.
—Thompson, Clarissa Ann,	Minneapolis,	Modern.
—Thompson, Mary Ellen,	Minneapolis,	Modern.

—Thompson, Maud,	Minneapolis,	Modern.
Timberlake, Byron Harvey,	Milo, Ia.,	Modern.
Trask, Birney Elias,	Minneapolis,	Scientific.
—Upton, Sarah Louise,	Minneapolis,	Modern.
Upton, Wendell Phillips,	Big Lake,	Modern.
Weed, Lincoln Abram,	Lake City,	Scientific.
West, Max,	Minneapolis,	Scientific
Wilson, Halsey William,	Waterloo, Ia.,	Modern.
Winslow, Walter Edwin,	Minneapolis,	Scientific.
Woodward, Herbert Milton,	Richfield,	Scientific.
Wyman, Frank Ernest,	Minneapolis,	Scientific.

SPECIALS, 50.

Anderson, Christian,	Spring Valley.
Andrews, George Cutler,	Minneapolis.
Anderson, Charles Remington,	Bristol, D. T.
Armstrong, James Douglass,	St. Paul.
Aslackson, Baxter Martin,	Willmar.
—Brooks, Lucia May,	Minneapolis.
—Burnes, Catherine A.,	Minneapolis.
Christianson, C. H.,	Bath.
—Cross, Kate Bird,	Minneapolis.
Dahl, John Albin,	Minneapolis.
—Decker, Mrs. W. F.,	Minneapolis.
Felt, Charles Ellery,	Minneapolis.
—Gale, Isabel,	Minneapolis.
Glasby, DeCloise,	Dodge Centre.
—Grimes, Ella,	Minneapolis.
Hall, Peter Matthias,	Minneapolis.
—Hammond, Fanny May,	Iowa City.
Holmes, Walter Benjamin,	Faribault.
Holt. Charles A.,	Carver.
—Hughes, Jennie,	Minneapolis.
Jennison, Samuel Wellington,	Red Wing.
—Jewett, Minnie Augusta Belle,	Brainerd.
Krohn, Eugene,	Arendale.
—Linton, Sarah Virginia,	Minneapolis.
Ludlum, John Thomas,	Minneapolis.
—Lyall, Jeanette,	Minneapolis.
—McBride, Etta May Harding,	Garden City.
Marini, Edward De,	Minneapolis.
Monahan, Thomas H.,	Minneapolis.
—Mott, Alice Jane,	Faribault.

Nelson, Olaf Nicholson,	Minneapolis.
Petterson, Wilhelm,	Valley City.
Ribler, Byron Christian,	Ordway, D. T.
Robinson, Horace Randall,	Minneapolis.
Rollit, Charles Carter,	Minneapolis.
Schumacher, Albert John,	Henderson.
--Skinner, Gladys Calista,	Minneapolis.
Skördalsvold, Johannes Jensen,	Minneapolis.
Smith, Frank Rhodes,	Minneapolis.
Spaulding, William Augustus, D. D. S.,	Minneapolis.
--Stearns, Susie May,	Duluth.
Stephenson, John Linnens,	Keystone, D. T.
--Stephenson, May Elanore,	Keystone, D. T.
Thuland, Abraham John El,	Lanesboro.
Thuland, Konrad M.	Lanesboro.
Udden, Johan August,	Lindsborg, Ks.
Wagner, Robert Adams,	Minneapolis.
White, Samuel Morris,	Lake City.
—Wilcox, Frances Louisa,	Minneapolis.
Winchell, Horace Vaughn,	Minneapolis.

ARTISAN'S TRAINING SCHOOL.

A DIVISION—4.

Chant, James Henry,	Minneapolis.
Heath, Samuel Fuller,	Minneapolis.
Larson, Wm.,	Carver.
Munson, Otto,	Woodbury.

B DIVISION—1.

Munson, Theodore,	Woodbury.

C DIVISION—17.

Brackett, David William,	Minneapolis.
Budds, George,	Minneapolis.
Fitzpatrick, Thomas,	Mankato.
Hall, Frank Xavier,	Minneapolis.
Loring, Albert Edgar,	Minneapolis.
Malsness, Harvey C.	Minneapolis.
Pattee, Samuel LeRoy,	Minneapolis.
Pritchett, John,	Minneapolis.
Pritchett, Edward Kintzing,	Minneapolis.
Reidhead, Frank Erven,	Minneapolis.
Stacy, George,	Monticello.

Stalker, Benjamin Franklin,	Harristown, Ind.
Thompson, Peter Adolph,	Minneapolis.
Vivian, John L.,	Opechee, Mich.
Wees, Zebulon De,	Minneapolis.
Wagner, William,	Calumet, Mich.
Worthington, Brainard Taylor,	Minneapolis.

D DIVISION—64.

Adams, Frank,	Minneapolis.
Ames, Joseph E.,	Minneapolis.
Arris, Daniel,	Minneapolis.
Bluntach, John W.,	Vermillian.
Boehme, Gotlieb,	Minneapolis.
Boehning, Andrew,	St. Louis, Mo.
Bradshaw, Willis,	Minneapolis.
Brandt, Henry C.,	New Ulm.
Brittain, Fred C.,	Minneapolis.
Brittain, Perley J.,	Minneapolis.
Brown, Pearl H.,	Minneapolis.
Brown, William H.,	Gladstone, Da.
Burke, Alton D.,	Minneapolis.
Casey, James W.,	Waverly.
Casey, Thomas,	Minneapolis.
Coleman, Charles W.,	Minneapolis.
Covell, Fred M.,	Minneapolis.
Crane, Ralph E.,	Minneapolis.
Cupples, Cassius,	Minneapolis.
Dickson, Charles E.,	Minneapolis.
Devereaux, William,	Minneapolis.
Eddy, Axel Lincoln,	Minneapolis.
Garland, Sandy M.,	Minneapolis.
Gauvreau, Eugene,	Minneapolis.
Greenlow, Alvah,	Rockland, Me.
Guptil, Nathaniel H.,	Minneapolis.
Hibbard, Marvin,	Minneapolis.
Hills, William E.,	Minneapolis.
Holm, Charles,	Minneapolis.
Huck, John,	Minneapolis.
Humphrey, Otis L.,	Minneapolis.
Hurd, Hosea C.,	Minneapolis.
Hurd, Webster F.,	Minneapolis.
Johnson, Burt,	Minneapolis.

Jones, Morris A.,	Minneapolis.
Kilgore, Fred O.,	Minneapolis.
Lavers Thomas,	Minneapolis.
Lauritzen, Peter M.,	Minneapolis.
Little, William,	Minneapolis.
McKeen, Fred K.,	Minneapolis.
Manning, George V.,	Minneapolis.
Merriman, John H.,	Minneapolis.
Michelet, Ore,	Minneapolis.
Miner, William H.,	Minneapolis.
Morse, Fred,	Minneapolis.
Moses, Chester B.,	Minneapolis.
Moyer, Charles,	Minneapolis.
Neerland, Hans,	Minneapolis.
O'Brien, Michael,	Minneapolis.
Plachte, William,	Minneapolis.
Porter, Alfred,	Minneapolis.
Potvin, Alfred,	Minneapolis.
Shattuck, William P.	Minneapolis.
Skenkle, David,	Minneapolis.
Stebbins, Franklin M.,	Minneapolis.
Stoddard, James,	Minneapolis.
Thomas, William,	Minneapolis.
Thompson, John H..	Minneapolis.
Watts, Alfred,	Bristol, England.
Weil, Samuel,	Minneapolis.
West, Henry C.,	Minneapolis.
Wheeler, Milton M.,	Minneapolis.
Williamson, Alonzo B.	Minneapolis.
Wyman, Adelbert A.,	Minneapolis.

SUMMARY—1885-86.

Department	Class	Gentlemen	Ladies	Totals
Graduate Students		19	6	 25
College of Science, Literature and Arts	Senior	9	8	17
	Junior	26	1	27 44
College of Mechanic Arts	Senior	1		
	Junior	1		2
	Sophomore	30	9	39
	Freshman	30	17	47
	Sub-Freshm	83	30	113
	Special	33	17	50—249
	Artisans' A	4		
	Artisans' B	1		
	Artisans' C	17		
	Artisans' D	64		86
Totals		318	88	406

CROSSCUP & WEST, PHILA.

THE UNIVERSITY.

The University of Minnesota is a State institution, endowed by the general government and supported by the State, being a part of the State educational system. It is situated in the city of Minneapolis, about a mile below and in full view of the Falls of St. Anthony. The grounds are now about forty-five acres in extent, undulating in surface, well wooded with native trees, and by reason of the natural advantages of situation and contour, very attractive.

The experimental farm of the Agricultural College is situated on Como Avenue, about two miles distant.

DEPARTMENTS.

The University is a confederation of four distinct colleges: A College of Science, Literature and Arts, a College of Mechanic Arts, a College of Agriculture, a College of Medicine; and provisions are made in the charter for a College of Law, which will be opened when there is a demand for it, and at such a time as the revenues of the institution will warrant.

I. In the COLLEGE OF SCIENCE, LITERATURE AND ARTS there are three courses of study, called classical, scientific and literary. The classical course has for its leading studies the Greek and Latin languages; the scientific course, the natural sciences; the literary course, the modern languages. The regular college courses are of four years duration, besides a year of preparatory work for those who are not able to enter the Freshman class. The completion of these courses leads respectively to the degrees, *Bachelor of Arts*, *Bachelor of Science* and *Bachelor of Literature.*

II. The COLLEGE OF MECHANIC ARTS offers courses of study in civil engineering, mechanical engineering and architecture, leading to the degrees of *Bachelor of Civil Engineering*, *Bachelor of Mechanical Engineering* and *Bachelor of Architecture*. There is one year of preparatory work, and four years of college work. The "Artisans' Training School," a department of this college, offers courses of practical instruction in shopwork and drawing, but no degrees are conferred.

III. The COLLEGE OF AGRICULTURE offers a regular college course in agriculture of four years of college work and one year of preparatory work. The degree *Bachelor of Agriculture* is granted upon completion of the course. The requisites for admission are such as to give free access to students who are well grounded in the ordinary English branches.

IV. The COLLEGE OF MEDICINE. The faculty of this college constitutes an examining board. No instruction is offered, but the degree of *Bachelor of Medicine* is conferred upon applicants passing a satisfactory examination.

V. THE GRADUATE DEPARTMENT. In each of the colleges there is an advanced course of study leading to the Master's degree. These courses are open to graduates of any reputable college, upon presentation of diploma.

SPECIAL COURSES. In all the departments students of advanced age and limited time are permitted to pursue under direction of the faculty one or two distinct lines of study and investigation.

ADMISSION.

The university is open, free of all charges for instruction, upon equal terms to all persons over fourteen years of age, whether residents of the state or not, who may pass the required examinations. After the year 1886 applicants will not be admitted to the preparatory class provided they can get instruction in the subjects taught in this class in the district in which they live. It is believed that the necessity for continuing this class will not exist at the end of two or three years, and the class will then be discontinued.

TERMS.

The University year embraces thirty-eight weeks, beginning on the thirteenth Tuesday before the last Thursday in November, and is divided into three terms. The first term has thirteen, the second twelve and the third thirteen weeks. See calendar of days and dates on page five.

DAILY ROUTINE.

As a general rule each student, in whatever department, has three recitations or lectures a day for five days in the week, besides rhetorical exercises. Monday is taken as a holiday. The morning session begins at 8:15 o'clock, and is divided into five periods of fifty-five minutes each. A general assembly of students and faculty is held each day at 11 o'clock, at which there are brief and simple religious exercises.

MILITARY DRILL.

Military drill is not compulsory, but about sixty of the students have received instruction from Prof. Breda in military science. It is expected that an officer of the United States Army will soon be detailed for the purpose of giving instruction in this department.

CALISTHENICS.

Light gymnastics were provided during the first term of the past year for all the ladies attending the University who desired to receive instruction. There were two exercises a week during the term. The instruction in this department was given in the large drill hall by Mrs. R. A. Bristol, a lady who has had large experience in training young ladies in light gymnastics.

EXPENSES.

These depend largely upon the taste and habits of the individual. The University has no dormitories, but students find no difficulty in obtaining board among the people of the city. Good board can be obtained in private families at prices ranging from $4 upwards. Some of the students board in clubs at a cost of from $2.50 to $3 per week.

The University cannot promise employment to those desiring to earn their own living. The public bounty stops at furnishing free instruction. Many of the students support themselves while in college, and a young man who really wants work and will look for it can generally find it.

The only university charge is the annual fee of $5.00 for incidental expenses. This fee must be paid before the student can join his classes, and no deduction is made for absence or late entrance. Students provide their own books. Laboratory charges depend upon the amount of material used.

The *average* necessary expenses of students boarding in families appear to be about $275; those of students boarding in clubs about $200.

STUDENTS' SOCIETIES.

THE STUDENTS' CHRISTIAN ASSOCIATION. This society was formed by students for the purpose of mutual moral and spiritual improvement. Devotional meetings are held weekly, and students are cordially invited to attend its meetings and aid in its work. The constitution provides for including all and excluding none who sympathize with the object of the association and desire to share in its work and benefits. Permission to erect a building on the campus has been given, and more than ten thousand dollars have been secured for the building. This amount has been given by generous friends in St. Paul, Minneapolis and the East. The foundations of the building will be laid the present year, and the building will be ready for occupation in the summer of 1887.

LITERARY SOCIETIES. There are two literary societies, meeting every Monday evening during the school year, which furnish excellent and much prized opportunity for practice in extemporaneous speaking and parliamentary procedure. Besides these two societies which are open to all students, several of the college classes have debating clubs of a similar nature.

The ATHLETIC ASSOCIATION is a University organization, having for its object the general physical culture of the students, and the encouragement of a proper spirit in favor of hearty, manly sports. The Monday before Commencement is the Annual Field Day of the Association.

ALUMNI ASSOCIATION.

This association was organized in 1875. All graduates of the existing colleges of the University are members. The members of the board of regents and the general faculty are honorary members. There are the usual officers charged with the customary duties. An Executive committee conducts business not otherwise provided for. The annual meeting is on the day preceding Commencement, at 3 o'clock P. M. The Alumni attending commonly dine together after the public exercises on commencement day. The executive committee for the year 1885-86 is as follows: Mr. H. J. Smith, President; Miss Bessie Lawrence, Vice-President; Miss Lizzie House, Secretary; Mr. J. W. Perkins, Treasurer; Prof. J. C. Hutchinson, Historian; G. A. Wood and Geo. S. Grimes.

GENERAL EQUIPMENT.

BUILDINGS.

The main or academic building is 186 feet in length and 90 feet in breadth, exclusive of porches, having three stories above the basement. The walls are of blue limestone and the roof of tin. The rooms, 53 in number, as well as all the corridors, are heated by an efficient steam apparatus, and are thoroughly ventilated. Water is supplied from the city mains, and there is a standpipe running from the basement through the roof, with hose attached on all the floors, for protection against fire. The assembly hall, in the third story, 87x 55 feet and 24 feet high, will seat with comfort 700 people, and 1,200 can be accommodated.

THE AGRICULTURAL COLLEGE is of brick on a basement of blue stone, 146x54 feet. The central portion is two stories in height. The south wing, 56x37, is a plant house of double sash and glass. The north wing contains the chemical laboratory. There are class rooms for chemistry and agriculture, and private laboratories for the professors. A large room in the second story is occupied by the museums of technology and agriculture. A model farm-house and barn have been erected on the experimental farm.

THE MILITARY BUILDING was completed in the summer of 1884. It is the largest drill hall in the country, and is so constructed as to serve the additional purpose of a large assembly hall. It will seat with comfort 3,500 people.

THE COLLEGE OF MECHANIC ARTS building, to be ready for occupancy by the opening of the year 1886-87, will be of red brick with brown stone trimmings and a slate roof. It will have two stories with a high basement and a one-story wing to the rear; and will be 89x53 feet, not including the wing. The building will contain 20 rooms, exclusive of the cloak and wash rooms, affording large engineering and physical recitation rooms, drawing rooms, physical and testing laboratories, shops and apparatus rooms. It will be thoroughly ventilated, heated by steam and supplied with water from the city mains.

For perspective and the floor plans of this building, see College of Mechanic Arts.

MUSEUMS.

THE GENERAL MUSEUM comprises the collections of the geological and natural history survey of the state, augmented by purchases and donations. The specimens are contained, so far as they are ready for exhibition, in rooms 51 and 52 of the main university building. In the south room, No. 52, are the geological and mineralogical specimens, in cases suitably arranged about the room; the suite of typical Minnesota rocks and minerals being in the large case in the center of the room. Upwards of 4,700 entries and 12,000 specimens, including duplicates, indicate the volume of this department of the museum, embracing species not only from the state of Minnesota, but from all parts of the world. Among these is a complete series of the zinc and iron minerals and their associates, from Franklin, Ogdensburg, and Bergen Hill, N. J., and a collection of sixty-four meteoric stones and irons from different parts of the world.

In the wall cases of this room are displayed the collections of Rev. H. C. Hovey, D. D., generously deposited by him for inspection by the members of the University and the public. They include a large number of unique "cave specimens" gathered by their owner from the famous Mammoth, Luray, and Wyandot caves.

An archæological collection of several hundred specimens, chiefly from the region of the Mound Builders in Ohio, has also been deposited by Dr. H. E. Twichell. It is expected that this collection will ultimately become the property of the University.

In the north room, No. 51, are upright cases filled with zoological specimens. These embrace specimens of some of the larger mammals and fur animals of the Northwest, birds, marine invertebrates, alcoholic preparations, and a set of Prof. Ward's cast of fossils.

The General Museum has lately acquired by purchase a large number of specimens representing specially the bird and mammalian fauna of the Northwest, and particularly of Minnesota.

Sets of the collections of the United States Fish Commission from the Atlantic and Pacific coasts, have also been presented by the Smithsonian Institution.

The Museum is rapidly growing in value by the accumulations of the geological survey of the state, and is constantly used for the illustration of scientific instruction. The rooms are open daily during the university year for the convenience and use of students and visitors.

Contributions and correspondence should be addressed to the curator, Prof. N. H. Winchell.

THE MUSEUM OF AGRICULTURE is designed to assist in illustrating the instruction in agriculture and horticulture. It comprises models of agricultural implements, seeds of grasses, grains and noxious weeds in jars; grasses and grains in the straw; drawings and *lithographs* of machines and animals; fruits preserved in alcohol;

fertilizers and other articles of interest to the farmer. Contributions are respectfully requested, and should be addressed to Prof. Edward D. Porter.

THE PLANT HOUSE is similar in purpose to the museum of agriculture. It is designed to furnish (1) means of illustrating the subject of botany, viz: specimens for analysis before the class, and living plants of botanic or economic interest that cannot be grown in the open air in Minnesota; (2) means for illustrating the subject of horticulture, and the construction, heating and management of plant houses.

THE MUSEUM OF TECHNOLOGY.—A cabinet of specimens illustrating the products and processes of applied chemistry is being collected by the professor of chemistry, as opportunity offers, This collection will embrace fuel, ores, furnace products, textile materials, both raw and manufactured; dye-woods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woolen goods, earthenware, pottery, etc. Contributions are respectfully solicited, for which due credit will be given. They should be addressed in care of Prof. James A. Dodge.

THE CLASSICAL MUSEUM, a beginning of which has been made, will comprise all *materia* that may illustrate classical geography, topography, chronology, mythology, geography, archæology, and art, such as plans of ancient cities, temples, battle-fields, camps, etc ; busts (original and plaster casts); coins and medals; specimens (original and plaster casts) of ancient sculpture, friezes, capitals, columns; etc.; of vases, etc. books and plates of costumes, military weapons, armor, household and agricultural affairs, and naval illustrations, etc.; architecture; ancient books and manuscripts; specimens of inscriptions and implements used in writing, and in the arts. Contributions may be sent to Prof. Jabez Brooks, D. D.

THE LIBRARY.

The bound volumes number more than 20,000, and additions are constantly being made. In addition to the general library the following special collections have been acquired:

1. The Robertson collection of 1,200 volumes, purchased of Col. D. A. Robertson, of St. Paul, formerly a professor in the University. This collection is rich in works on American history, Arctic travel and discovery, ethnography, and political economy.

2. The Campbell collection of 2,800 volumes, selected by Prof. G. Campbell in London, Berlin, Florence, and other cities in Europe. This embraces many French, German, and Italian works. The sub-

jects most numerously represented are philology, philosophy and social science, general literature, history, and biography.

3. The Tappan collection, comprising 2,500 volumes from the library of the late Rev. H. P. Tappan, D. D., LL. D., ex-president of the University of Michigan. This collection contains choice and valuable editions of standard English authors, numerous works on philosophical subjects, and many reviews and works of reference.

4. The State Library collection, being the miscellaneous books of that library turned over to the University by an act of the legislature of 1877.

The miscellaneous purchases have been confined to encyclopedias, dictionaries, bibliographical material, and works of first necessity for the various departments of instruction. Among the public documents are to be found sets of the Smithsonian publications, the coast survey reports, the survey of the Pacific railroad, Schoolcraft's Indian tribes, United States geological surveys, patent office reports, etc.

The alphabetical lists of authors, printed from year to year, serve a good purpose as a catalogue of authors, and furnish the titles for the printed card catalogue. There is a catalogue of subjects called "Finding Lists" kept for sale at 25 cents per copy.

The library and reading room occupy rooms 18, 20, 22, 24 to 28 in the first story of the main building. The books are shelved according to a simple classification upon a so-called "elastic system" which allows additions indefinitely without disturbing the existing arrangement and numbering.

The library is open to everybody from 8:15 a. m. to 4:15 p. m, every day of the university year, except Sundays and holidays. During the vacation the library is open on Wednesday and Saturday evenings at 7:30 o'clock for the issue and receipt of books borrowed. Members of the University are allowed to borrow books for home reading, to be kept seventeen days; but works marked in the catalogue with a * (called "starred books"), comprising books of reference, illustrated works, and rare and costly books cannot be removed. These works, as well as all others, may be read and consulted in the reading room.

About eighty periodicals are received regularly by the library. This includes all the leading quarterlies, bi-monthlies, monthlies, weeklies and semi-weeklies.

APPARATUS.

No attempt has been made at display, but great pains have been taken to procure for the various departments the essential instruments and materials for illustration.

GYMNASIUM.

Two rooms in the military building have been fitted up by the students and supplied with all apparatus necessary for a complete course in physical training.

FRUIT FARM ON MINNETONKA.

In the winter of 1878-9 the State Horticultural Society organized a movement intended to compliment and encourage in his further endeavors, Mr. Peter M. Gideon, of Excelsior, Hennepin county, the well-known discoverer of the Wealthy apple. The result was an appropriation by the legislature of $2,000 for purchase of land, and $1,000 per annum for the salary of a superintendent, the control being placed in the hands of the board of regents. By good fortune a piece of land of the most favorable situation and exposure, lying on the peninsula dividing the upper and lower lakes of Minnetonka, was secured. Mr. Gideon was appointed superintendent, and is carrying on promising experiments.

GEOLOGICAL SURVEY.

The University is charged by law with the work of the geological and natural history survey of the state, under direction of the board of regents. This survey has been in operation since 1872, but has been confined principally to the geological portion of the work. More lately the regents have also ordered the beginning of botanical collections with a view to the creation of a full herbarium of the flora of the state, and instituted systematic observation and reports on the birds of Minnesota.

The law creating the survey embraces not only a geological survey including a complete account of the rocks and minerals of the state and their chemical analysis, but also a natural history survey, comprising an examination of all species of trees, shrubs, herbs, grasses native or naturalized, and a complete account of the animal kingdom, as represented in the state, including all mammalia, fishes, reptiles, birds, and insects. It also orders the tabulation of meteorological statistics and an investigation of the climatic peculiarities of Minnesota. It orders the collection of topographical and hypsometrical data, and the compilation of an accurate map, which, with the approval of the governor, is to be the official map of the state. The law also requires a permanent exhibition to be made in the buildings of the University, for public inspection, free of cost, in well warmed and furnished rooms. The regents make annual reports of progress, and on the completion of any portion of the work, a final report thereof is made to the governor. The first volume of the final report was published in August, 1884. Others are to follow immediately. These reports, are placed in all public libraries in the state, and in each High School working under the regulations of the High School Board. The remainder of the edition is sold at the cost of printing, ($3.50 per copy) and can be had by addressing the state geologist, Prof. N. H. Winchell.

The College of Science, Literature and the Arts.

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

THE FACULTY.

The PRESIDENT, PROFESSORS FOLWELL, BROOKS, MOORE, HALL, SANFORD, PIKE, DOWNEY, DODGE, BENTON, PEEBLES, BREDA, MACLEAN, JUDSON,

This college offers three courses of study, called the Classical, Scientific, and Literary. Applicants desiring to pursue Greek and Latin will select the classical course. Those desiring specially to pursue English, German, and French, with or without Latin, will select the literary course. Those desiring specially to pursue scientific studies, will select the scientific course. Mathematics is required to the same extent in the three courses.

REQUISITES FOR ADMISSION.

Applicants for admission to the Sub-Freshman class are examined in the following studies:

1. **Geography**—Harper's, or Swinton's Common School Geography, or any equivalent works.

2. **Physical Geography**—Geikie's or Houston's or equivalent.

3. **United States History**—Scudder's, Swinton's, or Anderson's or equivalent.

4. **General History**—Swinton's, Anderson's or equivalent.

5. **Natural Philosophy**—Gage's, or Avery's, or equivalent.

6. **Physiology**—Martin's, Dalton's, Houston's, or equivalent.

7. **Arithmetic**—*Complete;* Robinson, Wentworth, Olney, etc.

8. **Elementary Algebra**—Robinson, Wentworth, Olney.

(**9.**) **Latin Grammar**—Harkness or Allen & Greenough.

(**10.**) **Cæsar**—Three books of the Commentaries.

(**11.**) **Cicero**—First two orations against Catiline.

Applicants who do not propose to study Latin may offer in lieu of the Latin examinations given above, the following:

(**9.**) **English Grammar**—Complete, as contained in the best school Grammars. A *Theme* is also required on some character or topic, selected from the following: The Vicar of Wakefield, Ivanhoe, and Evangeline.

(**10.**) **English Word Analysis**—Swinton's New Etymology.

(**11.**) **English Composition**—Hart's large work, or equivalent.

Applicants for admission to the Freshman class will be further examined in the work of the Sub-Freshman year in the course chosen.

Examinations for admission will occur, beginning as follows: On Tuesday, June 8th, and Tuesday August 31st, in 1886; Tuesday, May 31st, and Tuesday, August 30th, 1887.

Graduates of St. Paul and Minneapolis High Schools will be admitted to the Freshman class without examination, upon presentation of diploma. During the coming year the High School Board will inspect and classify all the schools under its supervision, and after the year 1886 graduates of high schools of the *first rank* will be admitted to the Freshman class without examination, upon presentation of diploma.

REQUISITES FOR ADMISSION IN 1887.

After January 1st, 1887, requisites for admission to the Sub-Freshman class will be as follows:

1. *English Grammar and Theme.**
2. *English Composition and Elements of Rhetoric.*
3. *Arithmetic.*
4. *Elementary Algebra.*
5. *Plane Geometry.*
6. *History of Greece and Rome with Geographical Questions.*
7. *United States History with Geographical Questions.*
8. *Physiology.*

(9.) *Latin Grammar and Composition.*
(10.) *Cæsar.*
(11.) *Cicero*

Those who do not propose to take Latin may substitute for the Latin studies as given above, the following:

(9.) *Physical Geography.*
(10.) *Natural Philosophy.*
(11.) *History of England.*

Greek Grammar and Anabasis will be accepted as an equivalent for studies, other than Latin and Mathematics, which represent an equal amount of time and labor.

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*The subject will be chosen from the following list. The text-book mentioned is for the convenience of applicants:

1. Scott's Lady of the Lake.—*Edwin Ginn.* Ginn & Co., Boston; Boards, 40 cents; cloth, 60 cents.
2. Shakspere's Merchant of Venice.—*Rolfe.* Harper & Bros., 40 cents.
3. Lowell—The Vision of Sir Launfal. } Houghton, Mifflin & Co.
4. " The Cathedral, } Modern Classic, 40 cents.

SPECIAL STUDENTS.

Persons of mature years and judgment may be admitted to pursue one or two distinct lines of study, to be selected from the regular courses of study as tabulated in the schedule below. The following lines of study are offered to special students:

1. Mathematics.
2. Sciences, biological and physical.
3. Ancient Languages—Latin and Greek.
4. Modern Languages--German, French, Norwegian, Swedish, Danish.
5. History.
6. English—including English Language, Rhetoric, Logic, Philosophy, etc.

"All applicants, as conditional to their admission as special students, shall pass an examination in so many of the subjects known as requisites for entrance to the regular course of study, as properly belong, or are naturally introductory, to the line or lines of study they have elected; for instance, if they have elected mathematics, they shall be examined in entrance mathematics; if history, then entrance history; if science, then entrance science, with Physical Geography also; if English studies, or a modern language, then entrance English; if Latin, then entrance Latin; if Greek, then entrance Latin or English."

CURRICULUM.

The following schedule shows the studies for the different courses, classes, and terms except rhetorical exercises, for a scheme of which see page 53.

PREPARATORY CLASS.—(Sub-Freshman.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE	LITERARY COURSE.
I	1. Greek. 2. Nat. Philosophy (3). Higher Algebra (2). 3. Latin.	1. Chemistry. 2. Drawing-*Free-hand* (3). Higher Algebra (2). 3. English or Latin or German.	1. German. 2. Nat. Philosophy 3. Higher Algebra 2. 3. English; or Latin.
II	1. Greek. 2. Higher Algebra. 3. Latin.	1. Drawing (10 hours). 2. Higher Algebra. 3. English, or German, or Latin.	1. German. 2. Higher Algebra. 3. English, or Latin.
III	1. Greek. 2. Solid Geometry. 3. Latin.	1. Botany. 2. Solid Geometry. 3. English, or German, or Latin.	1. German. 2. Solid Geometry. 3. English or Latin.

FRESHMAN CLASS.

	CLASSICAL COURSE.	SCIENTIFIC COURSE.	LITERARY COURSE.
I	1. Greek. 2. Trigonometry. 3. Latin. [(3). 4. Drawing — *Free-hand*, (*Optional*.)	1. Drawing (10 hours). 2. Trigonometry, 3. English, or German, or Latin.	1. German, 2. Trigonometry, 3. English, or Latin. [(3). 4. Drawing— *Free-hand*, (*Optional*.)
II	1. Greek. 2. Theory of Equations and Ana l G'omt'y 3. Latin.	1. Drawing- *Perspective*, 2. Theory of Equations and Ana'l G'omt'y 3. English, or German, or Latin.	1. German, 2. Theory of Equations and Ana'l G'omt'y 3. English, or Latin.
III	1. Greek. 2. Botany. 3. English. 4. Surveying- (*Optional*) (twice a week.)	1. Chemistry. 2. Botany, 3. English. 4. Surveying (twice a week)	1. German, 2. Botany. 3. English, 4. Surveying—(*Optional*) (twice a week).

SOPHOMORE CLASS.

	CLASSICAL COURSE.	SCIENTIFIC COURSE.	LITERARY COURSE.
I	1. Latin. 2. Physics, 3. Rhetoric, 4. English, or French.	1. Chemistry, 2. Physics, 3. Rhetoric 4. English, or French, or Latin.	1. French, 2. Physics, 3. Rhetoric 4. English, or Latin.
II	1. Greek. 2. History A. 3. Physics. 4. English, or French.	1. Zoölogy, 2. History A. 3. Physics, 4. English, or French.	1. French, 2. History A., 3. Physics, 4. English.
III	1. Greek, 2. History B. 3. Chemistry, 4. Latin.	1. Zoölogy, 2. History B. 3. Physics, 4. English, or French, or Latin or German.	1. French, 2. History B., 3. Chemistry, 4. English, or Latin.

JUNIOR CLASS.

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	LITERARY COURSE.
I	1. English Literature. 2. Greek.	1. English Literature, 2. Physics, or Physiology&Histology	1. English Literature 2. German.
	3. 4. Elective for all courses	History C., Analytical Geometry,	Analytical Chemistry, Scandinavian Languages.
II	1. Logic, 2. Latin,	1. Logic, 2. Mineralogy,	1. Logic, 2. French,
	3. 4. Elective for all courses	Differential Calculus, Anal. and Theo. Chem. Physics, Physiology & Histology,	Scandinavian Languages, German, History D., English.
III	1. Psychology, 2. Astronomy,	1. Psychology, 2. Astronomy,	1. Psychology, 2. Astronomy.
	3. 4. Elective for all courses	Integral Calculus, Latin, German, Physics, Animal Morphology.	Scandinavian Languages, Mineralogy, French, English,

SENIOR CLASS.

I	1. 2. 3. 4. Elective for all courses	Geology, History of Philosophy, Practical Astronomy, French, Greek.	Political Science, History E., Scandinavian Languages Analytical Chemistry,
II	1. 2. 3. 4. Elective for all courses	Political Economy, Ethics. Analytical Chemistry, Geology, French,	Latin, Quaternions, American Literature, Scandinavian Languages,
III	1. 2. 3. 4. Elective for all courses	Political Science, French, Greek, Economic Geology, German, Scandinavian Languages.	Analytical Chemistry, English Literature, 2, Natural Theology, 2, Comparative Philology, 2, Lectures on Shakspere, 1, Pedagogics, 1,

GENERAL REGULATIONS

Applicants are free to select their courses of study on admission but cannot thereafter change them except as allowed by vote of the general faculty.

During the coming year Plane Geometry will be substituted for number 2 in the first term of the Sub-Freshman year.

Scientific students can take but one language at a time, as follows: All are free to take French at the beginning of the Sophomore year. Those who have pursued German during the Sub-Freshman year are free to elect between German and English during the Freshman year. Those who begin English or Latin in the Sub-Freshman year must continue those subjects two years.

In the Sub Freshman and Freshman classes the recitations in a given subject occur five times a week and in the Sophomore, Junior and Senior classes the recitations or lectures occur four times a week unless otherwise stated.

Surveying in the third term Freshman year is not required of ladies in the scientific course.

Members of the Sub-Freshman class and all students lately admitted are required to attend courses of lectures as follows: 1. On the relation of students to the University, delivered by the president during the first term. 2. On the use of the library, by the librarian during the first term; 3. On books and reading by the professor of English, during the second term. These lectures occur in alternate weeks.

In the Junior year the required study of any course is elective with reference to the other two courses.

Students of the scientific and classical courses who take German in the Junior year can continue it during the Senior year.

Those who have not previously had French can begin it in the Senior year.

Seniors are allowed to elect the mathematics of the Junior year.

EXAMINATIONS.

Examinations are held in every study at the close of each term. The marks for these are combined with the grade for the term which is determined in the earlier years by daily recitations and in the Junior and Senior years by means of examinations held without notice from time to time during the term. In order to be "passed" the student must obtain sixty-five per cent. of the available marks, in the Sub-Freshman, Freshman, and Sophomore years, and seventy-five per cent. in the Junior and Senior years.

Students who have been unsuccessful in examinations are separated into two classes: (1) those who have "failed;" (2) those who have been "conditioned," *i. e.*, may pass on making up in a satisfactory manner certain specified parts of the subjects. Students who have "failed" are required to take the subjects over with a succeeding class. Students who have been "conditioned" must remove the conditions within two terms, or be regarded as having "failed."

Examinations for "conditioned" students will be held during the first week of the first term in connection with the regular entrance examination and in the latter part of each term beginning on Thursday of the second week before the regular examination. No other special examinations will be held except by vote of the general faculty upon application in writing.

GRADUATION.

Students completing courses of study to the satisfaction of the faculty of the college, are entitled respectively to receive the appropriate baccalaureate degrees, to wit: Bachelor of Arts, Bachelor of Science, Bachelor of Literature.

Any person may undergo, at suitable times, examination in any subject; and if such a person pass in all the studies and exercises of a course, he is entitled to the appropriate degree.

INSTRUCTION.

A statement of the character and amount of work done in the various subjects taught in the several classes will be found on the following pages. These statements by the heads of departments should be carefully examined in connection with the tabulated courses of study.

I. LECTURES.—*President Northrop.*

The President will give during the year three courses of lectures. The first term he will lecture to the new students on the relations of students to the University, and will discuss various topics of general interest to students, especially health, manners, morals, habits of study, and character. The second term he will lecture to the Seniors upon eloquence and oratory. The third term he will lecture to the Seniors upon literature, and especially upon Shakspere.

II. MATHEMATICS.—*Professor Downey.*

Mathematics, on account of its wide application in practical affairs, as well as its great value in cultivating accuracy of statement, logical reasoning, and habits of close mental application, occupies a prominent place in all the courses of study.

Admission to the Sub-Freshman class requires a good knowledge of arithmetic, elementary algebra and plane geometry. Admission to the Freshman class requires, in addition to these, solid geometry and the higher algebra of the Sub-Freshman year, as indicated below.

The branches are the same for all courses until the end of the Freshman year, and, beginning with the Sub-Freshman year, consist of higher algebra, solid geometry, plane and spherical trigonometry, and the elements of analytical geometry.

The aim is so to direct the work of this elementary course as to prepare the student to enter successfully upon the study of the higher mathematics and upon the applications of mathematics in mechanics, astronomy, surveying and engineering.

In geometry the student is required to furnish demonstrations for many theorems not demonstrated in the text book, and to solve practical problems dependent upon geometrical principles.

The Sub-Freshman work in higher algebra embraces factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, radicals, simple equations, proportion, progression, variation, quadratic equations, inequalities, differentiation of algebraic and logarithmic functions, development of functions (by the binomial formula, by indeterminate co-efficients, and by Taylor's formula), and logarithms.

One term is given to plane and spherical trigonometry. The student's attention is directed to its numerous elegant and useful applications, and he is made familiar with its methods and the use of its tables by being required to solve a large number of practical problems.

The work in the theory of equations embraces the most important properties of equations, and the solution of higher equations (including Sturm's Theorem and Horner's Method of Approximation).

Analytical geometry is studied the first term with special reference to the conic sections, and the effort is to dwell upon such features as will make the work valuable to all, whether they pursue the study farther or not, and prepare them to understand the treatment of these curves in the subsequent course in astronomy.

Of the remaining mathematics, analytical geometry continued, differential calculus, and integral calculus are required in the courses of civil engineering, mechanical engineering, and architecture, and elective in the other courses, and quaternions is elective in all courses.

Analytical geometry is studied during a second term with reference, not only to the conic sections, but to loci generated according to any law. Much attention is given to producing equations of loci whose law of development is known, and to constructing and discussing such equations. The conic sections are still further treated, both by rectilinear and polar co-ordinates. After acquiring facility in the transformation of co-ordinates, the student investigates the properties of plane loci by means of their equations, and has a brief course in co-ordinate geometry of three dimensions

In calculus the text book used is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed. One term is given to the differential calculus and its applications in the development of functions, testing of functions for maxima and minima, and treating of tangets, sub-tangets, normals, sub-normals, direction and rate of curvature, evolutes and envelopes.

One term is given to the integral calculus and its applications in rectification of curves, quadrature of plane surfaces, quadrature of surfaces of revolution, cubature of volumes of revolution, and to deducing equations of curves.

One term is given to quaternions, the text books being Hardy's and Kelland and Tait's.

III. ASTRONOMY.—*Professor Downey.*

The course in astronomy extends through two terms.

Descriptive astronomy is required in all courses in the last term of the Junior year. It does not draw so largely from mathematics as does practical astronomy, but aims to give such information concerning the heavenly bodies and the laws by which they are governed as must be secured by everyone who aspires to the possession of a liberal education. The student learns the methods of determining the figure, size, density and weight of the earth; the dimensions, distances, motions, physical character and telescopic appearance of the bodies constituting the solar system; the nature of comets and meteors; the causes of many of the phenomena of the heavens, and the methods by which our knowledge of the fixed stars and nebulæ has been recently so much augmented. He thus obtains an enlarged conception of the universe and its Great Author. The text book work is supplemented by lectures, especially upon the history of the science and upon recent astronomical discoveries and theories.

Practical astronomy, first term, Senior year, is required in the courses of civil engineering, mechanical engineering and architecture, and elective in all other courses. The work embraces the theory and use of instruments, the use of the Ephemeris and Nautical Almanac, the various methods of determining time, latitude and longitude, methods of obtaining the parallax and position of celestial bodies, and of computing eclipses. The student is required to compute several eclipses before the time of their occurrence.

IV. CHEMISTRY.—*Professor Dodge and Instructor Sidener.*

During the first term of the Sub-Freshman year the students in the scientific course are required to take elementary general chemistry, This work covers the non-metallic elements and their compounds, including a few compounds of carbon, and corresponds nearly with the first fourteen chapters of Eliot and Storer's Elementary Manual of Chemistry. The study is pursued in a practical manner and comprises laboratory exercises, lectures and recitations.

In the Freshman year the scientific students continue general chemistry, attending mainly to the chemistry of the metals. The metals and their salts are exhibited and their preparation and properties demonstrated and described in the lecture and recitation room, while the students spend a part of the allotted number of hours of their term's work in the laboratory testing the action of the various reagents as applied to the metals and their compounds. In this way they make preparation for the pursuit of analytical chemistry in the Junior and Senior years.

In the first term of the Sophomore year organic chemistry is studied by the scientific students in a manner in general similar to the above, but with a suitable amount of attention to the theoretical matter involved in this branch of the subject.

The classical and modern students take, in the third term of the Freshman year, a. course. covering most of the ground of elementary chemistry as presented in the shorter text books.

Students in all courses can elect analytical chemistry during the whole or a part of the Junior and Senior years. In the second term of the Junior year a course of lectures, illustrated by experiments, on some of the principal parts of industrial, or technological, chemistry is assigned for two days per week, while two days are given to analytical chemistry. In the second term of the Senior year a course of lectures is given on the history of chemical theory, two days per week, while two days are given to analytical chemistry. For reference in the historical lectures books of the alchemical period. as well as those of more modern publication, are accessible

The chemical laboratory is fitted up in the best manner, with apparatus and fixtures of the most approved construction. It is designed to furnish instruction in general chemistry to all students in the scientific course of the collegiate department, and in qualitative and quantitative analysis and special research to all students of whatever department or college, who may desire and be entitled to such opportunities.

No charges are made for instruction, and only such charges for apparatus and chemicals as will cover actual cost to the institution. The charges for ordinary chemicals and apparatus will not exceed ten dollars per term. All glassware and other apparatus are charged to the student at cost. The glassware that is uninjured is received back at cost; other articles are received back under special regulations, generally at a discount of twenty per cent. The cost of apparatus will vary from two to five dollars per term, according to the care exercised by the student. To cover these expenses, students in analytical chemistry are required to deposit during the first week in each term, with the professor of chemistry, the sum of ten dollars, the balance of which, after deducting the charges mentioned, is delivered to the student at the end of the term.

Scientific students desiring to prepare for the study of medicine are advised to take the scientific course with Latin, electing French in the Sophomore year, German in the Junior, and analytical chemistry in a part of the Junior and Senior years.

Students desiring an extended course in chemistry are advised to take the scientific course with German, French in the Sophomore year, and analytical chemistry in the Junior and Senior years.

A room in the laboratory is fitted up for the practice of assaying, and this branch may be taken with elective analytical chemistry.

V. PHYSICS.—*Mr. Jones.*

REQUIRED COURSES.—*Scientific.*—A thorough knowledge of the elements of Natural Philosophy is required on entrance. Physics is pursued throughout Sophomore year as a required study. The work consists of recitations, lectures and experiments. The text-books used are Ganot's Physics and Dana's Elementary Mechanics. 1st term, Sound and Heat; 2d term, Light, Magnetism and Electricity; 3d term, Mechanics of Solids, Liquids and Gases. The subject may be continued in Junior year as an elective. (See elective course below)

Classical and Literary.—During the First term of the Sub-Freshman year three hours a week are devoted to Avery's Elements of Natural Philosophy. During the first and second terms of Sophomore year a general course in Physics, consisting of recitations, lectures and experiments, is pursued. The text-book will probably be Olmstead's College Philosophy. 1st term, Mechanics, Sound and Heat. 2nd term, Magnetism, Electricity and Light.

ELECTIVE COURSE.—In Junior year Physics is offered as an elective to regular students of all courses. The course extends through three terms, but the study may be elected at the beginning of any term. It involves practical work in the Physical Laboratory. No text-book is used, but the work is based on Pickering's Physical Manipulation, Kolrausch's Physical Measurements and Weinholdt's Experimental Physics. Students are also referred to special treatises and manuals contained in the University Library. The completion of the new Laboratory and its thorough appointment assure ample facilities for acquiring a practical knowledge of the methods of determinative measurements and general physical investigation.

PHYSICAL LABORATORY.—Five rooms on the first floor of the new College of Mechanic Arts constitute the Physical Laboratory. (1) The student's laboratory. This contains permanent tables and stone supports for instruments. (2) The dark-room, for photometric and photographic work. (3) The recitation and lecture room. (4) The apparatus room, containing cases, drawers and shelving for storing apparatus. (5) The professor's private study.

These rooms are conveniently arranged and connected, properly heated, ventilated and lighted, and supplied with gas and water.

The department has been supplied with an entirely new and complete equipment of physical apparatus and instruments from the most reliable manufacturers. A work shop, provided with wood and metal working tools, lathe, etc., is included, enabling the student to construct or adapt apparatus for specific purposes. Excellent opportunities are thus afforded for accurate work in physical experimentation.

VI. BOTANY.—*Professor Hall.*

The students of the classical and modern courses are required to take botany in the third term of Freshman year. The text book used is Gray's Lessons and Manual. This is a thorough course in systematic botany.

The students of the scientific course pursue botany two full terms. The work is that of observation; plants are studied, not books. Bessey's Essentials of Botany is used as a guide. By an arrangement with the department of chemistry a part of the work of Sub-Freshman year is done in the fall term; the botanical work of the course is thus distributed:

Fall term, Sub-Freshman year,—4 hours per week.
Spring term, Sub-Freshman year,—6 hours per week.
Spring term, Freshman year,—10 hours per week.

By this adjustment an opportunity is afforded to study systematically the lower forms of plant life.

The following forms come under observation during Sub-Freshman year: Slime moulds, bacteria, yeast, green slimes, desmids, diatroms, pond scums, volvox, the moulds, the blights, the rusts, mushrooms, lichens, mosses, etc.

During the Freshman year a study of the ferns and flowering plants is entered upon. Its object is to give a more thorough knowledge of structural and physiological botany and more skill in plant analysis. The instruction is made as practical as possible,

VII. ZOOLOGY.—*Asst. Prof. Nachtrieb.*

1. GENERAL BIOLOGY.—The work extends through two terms in the Sophomore year of the scientific course. The course consists of lectures and laboratory work. The student makes a careful study of the chief divisions of the invertebrates (viz.: the protozoans, coelenterates, echinoderms, worms, crustaceans and insects, and mollusks), and dissects several vertebrates. Structural affinities, the ways and means by which the various functions of life are carried on, and the life history (embryology) of typical forms are dwelt upon. The last three or four weeks are devoted to the development of the chick.

The studies pursued and the methods used are, irrespective of their great educational value, such that the student who desires the elements of biology as the basis for a professional life, or who desires to pursue his study in this fascinating field of natural history for his own recreation and edification, will get a good starting point from which to advance.

A constantly increasing collection of specimens and models is used to illustrate the different subjects as they are taken up in the lectures.

2. ANIMAL PHYSIOLOGY AND HISTOLOGY.—In the Junior year animal physiology and histology are offered as an elective, extending through two terms. The course consists of lectures, demonstrations and laboratory work. The student studies the minute anatomy and microscopical structure of the various organs in connection with the lectures on the functions of the organs, and is required to make some fundamental experiments. Those electing this work, it is hoped, will take both terms of the course. The second term's work can be taken up only by those who have done the work of the first term.

ANIMAL MORPHOLOGY.—This course, as is also the one in physiology, is advanced work, and consists of lectures and laboratory work.

VIII. GEOLOGY AND MINERALOGY.—*Professor Hall.*

In these studies the following courses are offered:

1.	*Mineralogy,*	*Second term Junior year.*
2.	*Descriptive and Determinative Mineralogy,*	*Third term Junior year.*
3.	*General Geology,*	*First term Senior year.*
4.	*Lithology and Historical Geology,*	*Second term Senior year.*
5.	*Economic Geology,*	*Third term Senior year.*

1. MINERALOGY.—This course will give the general principles of the science in lectures. It will be introduced by an outline of crystallography, and accompanied by blowpipe analysis enough to enable the student to determine readily the more commonly occurring minerals. The time required will be eight hours per week.

2. DESCRIPTIVE AND DETERMINATIVE MINERALOGY —as a continuation of course 1, is pursued in the lecture room and the laboratory. A collection of several hundred mineral species and a good working set of crystal models in wood and glass are constantly accessible to the student. In the determinative work special attention will be given to ores and other economic minerals and mineral aggregates. Quantitative determination will occupy a part of the time. Time, eight hours per week.

3 GENERAL GEOLOGY.—This course, while aiming to give an outline of the science, will be devoted chiefly to dynamical and structural geology. The cosmic aspects of geology, erosion, sedimentation, oscillations of level and geological dynamics, with discussions of facts and theories, will be treated from the standpoint of recent researches.

4 LITHOLOGY AND HISTORICAL GEOLOGY covers the following ground: (*a*) The different forms under which rock masses occur. (*b*) The classification and composition of rocks. (*c*) Microscopic examination of typical thin sections. (*d*) The

nature and significance of fossils. (*e*) A study of the Cambrian and Silurian faunas. (*f*) A survey of the whole field of paleontology. The equipment for this work is ample; the rich stores of the general museum, the increasing collections of the High School Exchange, and many hundreds of specimens from other sources, together with a large series of thin sections of foreign and local rocks and minerals, are available. The course will afford a comprehensive knowledge of the archaean and palæozoic formations of Minnesota.

5. ECONOMIC GEOLOGY consists of discussions of the relations of geology to mining, including the nature and origin of ore deposits, and a survey of the geological and geographical distribution of the ores of the most important metals. Building stones, precious stones, fuels, mineral springs, artesian wells and water supply, the formation and constitution of soils all receive their due share of consideration.

The student of mineralogy and geology is furnished with a good supply of maps, crystal models, thin sections, and specimens of minerals and rocks: *He who learn must study them.* The method throughout is essentially that of investigation; laboratory work and excursions give a practical character to the subject. While the several courses are arranged progressively and all are essential to a good understanding of geologic science, course 1, mineralogy, and course 3, general geology, can be taken by those students who have not inclination for the entire work. But course 2 must be preceded by course 1, or an equivalent; course 4 must be preceded by course 3, and course 5 by courses 1 and 3.

IX. ENGLISH LANGUAGE AND LITERATURE.—*Professor MacLean.*

For the work of the President in this department consult the statement under his name.

The wide and increasing interest in English, as an old as well as a new tongue, demands a thorough course of study. The language affords an opportunity for scientific discipline no less valuable than the broad culture its literature has always offered.

The training in "language" and grammar, in the preparatory schools, can not receive too much attention, for candidates for admission are often deficient in the rudiments of an English education. It is not designed that the preparatory schools shall attempt extended instruction in English literature, but that they shall aid to create a taste for good literature at the most important period in the youth's life.

The undergraduate course in the University is arranged progressively, and according to the historical development of the subject. The science of the language—the strictly linguistic work—ends with the Sophomore year. The literary and critical study is presented to the upper classes. The work of specialists in philology or in philosophical criticism and studies will be offered in the graduate course.

In the sub-Freshman year, the Latin and Romance elements and etymologies will be taken up with specimens of the literature. In the Freshman year the Old (Anglo-Saxon) and Middle English elements will be pursued in the same manner, together with the history of the language. Thus the foundation is laid for the study, in the Sophomore year, of the English of the masters, *e. g.*; Chaucer, Shakspere, Milton, Dryden and Pope.

In the Junior and Senior years, the work is designed for the students in all courses. In the first term, Junior year, all students are requied to take the history of English literature. In the second and third term they may elect Shakspere and the lectures in the history of Old and Middle English literature. In the second term, Senior year, the history of American literature is an elective study, with lectures on oratory by the president. In the third term, Senior year, a course of lectures is given to such as may elect it, on the higher criticism of Shakspere by the president, and on the philosophy of literature by the professor.

The efficiency of the department has been increased, during the past year, by the preparation of a special catalogue of the books pertaining to the department, and by the addition to the library of texts and reprints of rare authors.

Students desiring the full course in English, in the literary and scientific courses, must elect English at the beginning of Sub-Freshman year. But those in the scientific course not wishing the Latin elements, who have studied German in Sub-Freshman year, are free to elect English at the beginning of Freshman year,

SUB-FRESHMAN CLASS. 1st Term—Latin elements, with the study of Latin Grammar and exercises in writing and conversation.

2d Term—Latin elements, with selections from Latin Reader with special reference to vocabulary and the structure of sentences; exercises in writing and conversation continued.

3d Term—English etymologies of Latin and later Romance origin, illustrated by selections from Bacon, Dr. Johnson, and scientific text-books.

FRESHMAN CLASS. 1st Term—Old English (Anglo-Saxon) Grammar, and prose master pieces.

2d Term—Old and middle English poetry.

3d Term—(1) History of the English language, with Chaucer, for those in the English course. (2) Old English (Anglo-Saxon) elements, and history of the English language, for all not in the English course.

SOPHOMORE CLASS. 1st Term—Milton's Paradise Lost, and minor poems, studied with reference to diction, derivation of words, figurative language and classical allusions.

2d Term—The English of Shakspere (Rolfe) with Abbott's Shaksperean Grammar; English versification.

3d Term—History of Old and Middle English literature; lectures with the reading of authors.

JUNIOR CLASS. 1st Term—History of New English literature, lectures and "seminaries," with the reading of authors.

2d Term—Shakspere.

3d Term—History of Old and Middle English literature.

SENIOR CLASS. 2d Term—Lectures on oratory by the president, and on the history of American literature by the professor.

3d Term—Lectures on the higher criticism of Shakspere by the president, and on the philosophy of literature by the professor.

X. GERMAN LANGUAGE AND LITERATURE.—*Professor Moore.*

German is required of all students in the literary course. Those of the scientific course are free to commence at the beginning of the Sub-Freshman year. Students of the classical and scientific courses may commence German in the Junior year, and continue the same throughout the Senior year.

Students intending to graduate in the college of mechanic arts, desiring to pursue German, should commence it in the sub-Freshman year, as their time is occupied with professional studies in the Junior and Senior years.

First Year (sub-Freshman Class).

1st Term—Macmillan's German course, with blackboard exercises in translating English into German.

2d Term—Boisen's German Prose book (54 pages), and Whitney's German Grammar (144 pages, coarse print only), with oral and blackboard exercises.

3d Term—Boisen's German Prose book (102 pages), and Whitney's German Grammar completed (coarse print only), with oral and blackboard exercises.

Second Year (Freshman Class).

1st Term—Schiller's Egmont and Siege of Antwerp, with a review of the complete grammar.

2d Term—Wagner's German historical ballads, with German history and geography.

3d Term—Lessing's Minna von Barnhelm, and German composition.

Third Year (Junior Class).

1st Term—Schiller's Wilhelm Tell and Gœthe's Faust, first part.

2d Term—Lessing's Laocoon and Nathan der Weise.

3d Term—Deutsche Lyrik and history of German literature; lectures.

The objects aimed at in the above course of study are: (1) in the earlier stages, by means of oral and written exercises, to teach the student how to express himself with some degree of facility in German, on topics of everyday life; (2) a systematic study of German grammar; (3) a critical reading of some of the masterpieces of German literature, with collateral instruction and research in geography, history, mythology, biography of the authors, etc.

XI. FRENCH LANGUAGE AND LITERATURE.—*Professor Benton.*

French is required of all students in the modern course in the Sophomore year of the Collegiate Department, and is an option for the other courses, as for students of the College of Mechanic Arts.

French will be required hereafter of students in the modern course during the second term of Junior year, and will be an elective for students in the other courses; it will also be an elective to students in all the courses in the third term of Junior year.

French is an elective throughout the Senior year in all the courses of all the colleges of the University. Classical and scientific students who have not previously had French can begin it in the Junior or the Senior year.

The course during the past year has been as follows:

SOPHOMORES.

1st Term—Bocher's Otto's French Grammar and Reader.
2d Term—Bocher's course continued; exercises in writing and speaking French.
3d Term—Bocher's French course completed; Fleury's Histoire de France; Scribe's Doigts de Fee.

SENIORS.

1st Term—The Athalie of Racine; The Cinna of Corneille; The Misanthrope of Moliere; Alfred de Vigny's Cinq-Mars; Pylodet's Litterature Francaise Classique; Lectures in French on Rabelais, Montaigne, la Pleiade, L'Hotel de Rambouillet, Moliere, Corneille, Racine, La Rochefoucauld, Mme. de Sevigne, Pascal, Descartes, Bossuel, Fenelon, etc., etc.,—their genius and their times.
2d Term—La Philosophie de l' Art et l' Art en Italie par M. H. Taine. Tableaux de la Revolution Francaise par M. M. Crane et Lebrun. Lectures on the literature of the eighteenth century in France. Notes and reports by the class.
3d Term—Vie de Washington par M. Guizot; Dernier Abencerage par Chateaubriand; Hernani par V. Hugo; Petite Histoire de France par Duruy; Le Conscrit de 1813 par Erckmann-Chatrian; lectures on the literature of the nineteenth century in France.

REMARK.—So far as the progress of the classes will allow the conversational method is used in the class room. The words already learned are framed into questions and answers. The object aimed at is to give the student the ability to think and express himself in the French language; to read with fluency the works of French authors; and to obtain, through the medium of the language, a consecutive view of the history of French thought.

XII. SCANDINAVIAN LANGUAGES AND LITERATURE.—*Professor Breda.*

Scandinavian Languages are offered as an elective in the Junior and Senior years of all the colleges of the University. In the first two terms of the Junior year E. C. Otte's "How to Learn Danish" will be finished. The third term of the Junior year and all of the Senior year will be occupied in reading and translating selections from representative Danish, Norwegian and Swedish authors. Lectures will be given on the history of Scandinavian literatures. By means of the black-board and oral exercises, the students will be drilled in the practical use of these languages. Special facilities will be afforded students of Scandinavian descent wishing to study their mother-tongues.

XIII. LATIN LANGUAGE AND LITERATURE.—*Asst. Prof. Clarke.*

The requirements for admission to the Freshman class are:

1. Latin Grammar—Harkness' revised edition, or Allen & Greenough's, with Reader; Harkness or Jones' recommended.
2. Composition—Harkness' Part II. or an equivalent.

3. Reading—Three books of Cæsar's Commentaries, with syntax; geðgraphy of Gaul; life of Cæsar and history of his times; four orations of Cicero, with syntax, and history of the Catilinian conspiracy; four books of Virgil, with syntax; prosody; mythology; physical and political geography of Italy, with an outline of Roman history until the 2d Punic war.

The Freshman Latin is Livy, with Latin composition, Roman history, and a thorough review of syntax.

The Sophomores read Horace (Odes, Satires, and Ars Poetica), Tacitus and Pliny's letters. In connection with Horace the history of Roman literature is pursued, and with Tacitus the history of Rome under the emperors.

The Juniors have Latin comedy,—Plautus or Terence.

The Seniors have oratory and philosophy.

The Roman method of pronunciation is followed.

VOWELS.—Sound of the long vowels *a* as in *father;* *e* as in *prey;* *i* as in *machine;* *o* as in *no;* *u* as in *pool;* *y* as the French *u*, or the *i* above.

Sound of the short vowels same as above but shortened.

The long and short vowels are identical in quality, differing only in quantity.

DIPHTHONGS.—Give the constituent vowels their proper sounds, and pronounce them in their order as rapidly as possible, as:

ai and *ae* like the English adverb *aye* (yes); *ou* like *ow* in *owl*, or as in German *Haus;* *eu* nearly as in *feud;* *ei* nearly as *feint*, putting the stress on the last vowel; *oi* nearly as *oy* in *joy;* *oe* as *o-eh;* *u* in *ua*, *ue*, *ui*, etc., as the English *w*.

CONSONANTS.—*c* is always hard, as *k;* *g* always hard, as in *give* *j* as *y* in *year;* *v* approximate to the English *w;* *r* with a slight trill, as *per* in *perry;* *s* always sharp, as in *this;* *t* always simple, not as *sh;* *x* always as *ks;* *ng* as in *anger;* *nc* as in *rancor;* *nq* as in *banquet;* *qu* as in *queen;* *ch* like *k;* *th* as in *then;* *ph* as *f;* the other consonants as they are in English.

The full course in Latin is offered to scientific students, as such students can take French when Seniors, if they desire to do so.

XIV. GREEK LANGUAGE AND LITERATURE.—*Professor Brooks.*

Greek is begun in the sub-Freshman year, without imposing any conditions upon the candidates. The studies in the course in Greek are as follows:

SUB-FRESHMAN CLASS.—1. AUTHORS—Hadley's and Goodwin's Grammars, with appropriate Lesson Books; Xenophon's Anabasis, 3 books.

2. COMPOSITION—The exercises are based upon the text.

3. COLLATERALS—(To be recited), Smith's History of Greece, the Introduction, and Chapters 6 and 7, Book II.; (to be read), Smith's History, Book III., and Chapter 36, Book V.

The acquisition of a thorough and ready knowledge of Greek Grammar—the vocal elements, elision, syllabication, euphony, quantity, accentuation, proclitics, enclitics, inflection, the verbal elements. the principal parts of the irregular verbs, the formation and composition of words, and syntax—is the aim of the work in the sub-Freshman year, and is insisted upon as essential to an admittance to the Freshman class. It is a more important acquisition, in this early stage of Greek study, than a mere, though fluent, reading of the amount of Greek specified, and if it is not made here, it generally never will be. It lays a solid foundation for the intelligent and also for the rapid reading of authors, and makes room for the study of the history, chronology, mythology, antiquities, etc., that stand connected with the authors read, by relieving the instructor from the necessity of continually drilling his class in routine parsing. Of grammatical parsing it may be said that it is an exercise which, however necessary when used in proper measure and at the beginning of a course of instruction, contributes when confined, as it usually is to mere technicalities, nothing to a practical acquaintance with the language, and, when continued, as author after author is read, becomes a positive hindrance to the acquisition of the larger and better knowledge of its literature.

Conversation exercises are prepared by the department, and used with very satisfactory results. Translation at sight of selected passages, is also practiced.

FRESHMAN CLASS.— 1. AUTHORS—Xenophon's Memorabilia, or Cyropædia, and Symposium; Demosthenes' Olynthiacs and Phillipics, or De Corona.*

2. COMPOSITION—Exercises based upon the authors read.

3. COLLATERALS—(To be recited) with Xenophon, Smith's History, Sections 8-15 inclusive, Chapter 35, Book IV.; (to be read), Grote's History, Chapter 68; (to be recited) with Demosthenes, Smith's History, Chapters 42 and 46, and Sections 2, 3, 4, Chapter 48, Book VI.; (to be read), Smith's History, Books IV., V. and VI.; Grote's History, Chapters 86 90, inclusive, and 95; Hermann's Political Antiquities of Greece; Plutarch's Lives (Demosthenes).

SOPHOMORE CLASS.—I. AUTHORS—One tragedy, Æschylus' Prometheus, or Agamemnon, or Sophocles' Antigone, or Œdipus Tyrannus; Plato's Apology, and Crito, or Phædo, or Gorgias; Homer, 1 book.

II. ESSAYS—Three on the tragedy, to wit: (if Prometheus be read.)

1. *An analysis* of the tragedy.

2. *Quotations* from other literatures suggested by and illustrative of passages found in the tragedy.

3. *Epithets* of Zeus; Prometheus, and the place of his punishment defined and classified.

And three on Plato, to wit:

1. *An analysis* of the apology, embracing the court, the judges, the accusers, the indictment, the order of procedure, Socrates' method of defense, and the order of argumentation.

2 *A sketch* of Socrates, his times, character, etc.; discussion of the diamonion and the adequacy of his defense.

3. *A disquisition* on the sophists, and Socrates' relation to them.

III. COLLATERALS—(To be recited) with the tragedy: Smith's History, Sections 1 to 7, inclusive, Chapter 35, Book IV.; (to be read), Donaldson's Theatre, Blackie's Horæ Hellenicæ (article on Prometheus Bound); (to be recited) with Plato, Smith's History, Sections 5 to 10, inclusive, Chapter 48, Book VI., and Sections 10 to 15, inclusive, Chapter 35, Book IV.; (to be read), Grote's History, Chapters 67 and 68, Blackie's Wise Men of Greece, Blackie's Four Phases of Morals (article on Socrates).

JUNIOR CLASS.—1. READING—Homer's Iliad, or Odyssey, with lectures.

2. COLLATERALS—(To be read), Grote's History, Chapters 15, 19-21, inclusive, Blackie's Horæ Hellenicæ (articles on Theology of Homer, and interpretation of Myths in Grecian Mythology).

SENIOR CLASS.—Lectures on the Greek language and literature; on Greek poetry, with selected readings; on Greek Philosophy, with selected readings.

MISCELLANY.—Attic Greek is studied connectedly to nearly the end of the Sophomore year. The amount of collateral reading can be extended according to the time and tastes of the students; that given above is required to be read. Greek is pronounced according to the accents, and with the so-called continental (modified somewhat) sounds of the vowels and diphthongs. The following are the general principles and methods of work in the department: In translation, the radical meaning of words is to be learned, but the precise signification in the passage rendered is to be given. The thing to be done in translating an author, is to give his exact meaning, in the best idiomatic, grammatical English; facts, allusions, tropes, history, chronology, mythology, topography, customs, arts, laws, grammatical forms and elements, etymologies and composition of words, are to be attended to. Translation of English into Greek is based upon the author read. So far as the author himself is concerned, among the things to be noted are: the chief acts of the author's life; the contemporary history and political condition of the country, and of the author's relation to them; the character of the people, and the expression and logical scope of his thoughts, and the wisdom, etc., of his views.

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*Lysias and Isocrates, with appropriate reading, will be interchanged with Demosthenes.

XV. MENTAL AND MORAL PHILOSOPHY.—*Mr. Peebles.*

The course in Philosophy includes :

I. Logic ; which is required for all the Juniors in the second term. The course includes :—(*a*) formal logic, comprising the laws of discursive thought, according to both the Aristotelian and modern forms ; (*b*) applied logic, treating of the methods of application in scientific investigation, by induction and deduction. Prominence will be given to oral instruction and practical exercises

II. Psychology ; which is required for the Juniors in the second term. The course is given in lectures, and some of the topics discussed are : body and mind ; sense-perception ; association ; self-consciousness ; the mental faculties, and the relation of language to thought ; the nature and extent of *a priori* truth. One-third of the time is devoted to recitations, discussions and reviews.

III. The history of philosophy ; which is open to the Seniors in the first term. The course is given in lectures, and embraces a historical exposition of ancient and modern philosophy. The principles of the leading philosophers are expounded, and the historical relations of the succeeding systems are unfolded. The lectures are accompanied by recitations, discussions and reviews.

IV. Moral philosophy ; which is elective in the second term of the Senior year. The course is given in lectures, and embraces, (1) a discussion of the history of ethics, ancient and modern ; (2) an exposition of the principles of theoretical ethics, with their application to actual conditions. One-third of the time is given to recitations, discussions and reviews.

V. Natural theology ; which is elective in the third term of the Senior year. The course occupies two hours a week, and is given in lectures. It embraces a discussion of the speculative basis of Theism, and a review of the evidence of God's existence, derivable from the constitution of nature and man.

XVI. HISTORY.—*Professor Judson.*

All applicants for admission are examined in the history of the United States, of Greece and of Rome. Those not presenting Latin are examined in the history of England.

The text-books of Scudder, Swinton and Anderson are suggested as indicating the amount of knowledge expected in the history of the United States. Creighton's Primer of Roman History, Fyffe's Primer of Greek History, and Thalheimer's England cover the ground of the examination in those subjects.

It should be noted that a definite portion of each examination in history will be devoted to the geography of the country in question.

It is hoped that teachers will not limit the knowledge of their pupils to the bare text-books. Students of history should, from an early period, be accustomed to refer to more extensive works for the clearing up of doubtful points. They should be encouraged to inquiry and discussion on questions of fact, and of cause and effect. A taste for merely reading history, also, even aside from careful study, is invaluable.

So far as possible, students should make a parallel study of manners and customs, by way of making the past more real. The occasional reading of well-selected historical novels will aid to this end; and the books of Wilkins and Mahaffy in the History Primer Series will be found useful helps in ancient history.

The History courses in the University are found in the last three years of the college of science, literature and the arts, and in the department of graduate study. In the second and third terms of the Sophomore year, History is required of all students. Elective courses are offered in the first and second terms of the Junior year, and in the second term of the Senior year. The following is the schedule of topics:

SOPHOMORE YEAR.

Second Term—History A.—Europe during the Middle Ages.
Third Term—History B.—England in the Middle Ages.

JUNIOR YEAR.

First Term—History C.—The Modern History of England.

Second Term—History D.—The Colonial History of the United States.

SENIOR YEAR.

First Term—History E.—The History of Civilization, with lectures on the Philosophy of History.*

In the above scheme two things are kept in view. The first is, that the student may gain such a knowledge of facts and their relations as may be of value in his subsequent university work, and such as an American citizen ought to have. It will be seen that the history courses of the Undergraduate classes have an immediate bearing on the courses in literature and political science that follow; and it is equally clear that one can hardly comprehend the institutions of his own country without some idea of the sources from which they have been developed.

In the second place, it is sought from the outset to lead students to form the habit of *research*. Undoubtedly a greater familiarity with facts might be acquired in a given time by merely following text-books supplemented by instruction given in lectures. But such work is removed as far as possible from the methods by which knowledge is gained and opinions are formed in after life; and the power of methodical and logical investigation is worth more to the student than any amount of mere learning.

The library of the university is well equipped with material for research, and important additions are expected during the coming year.

XVII. POLITICAL SCIENCE.—*Professor Folwell.*

All subjects in this department are electives in the senior year of the college of science, literature and the arts, and are also open to seniors of other colleges, and to special students found qualified.

FIRST TERM.—Political economy, four hours per week. The instruction is given in a course of dictated and conversational lectures. The aim of the teacher is to present clearly the history of the science and to thoroughly inculcate established principles. On disputed points the conflicting views are brought out with all possible impartiality.

SECOND TERM.—Civil government, four hours per week. An outline of the subject is presented in a course of twenty lectures. The constitutions of the United States and Minnesota are critically read and commented upon, and the leading titles of legislation discussed. City, county and town organization and administration are briefly treated. The principal chapter of Tocqueville's Democracy in America are read privately by the class, who are examined thereon. An outline of international law is given in a few lectures.

THIRD TERM.—National economy, four hours per week. The object of the instructor is to open the subjects of administration and finance, and to discuss, as the time may allow, such particular topics as taxation, national banking, protection, public education, immigration, transportation, money.

The subject of comparative philology attached to this department is offered as an elective two hours a week in the third term. The course embraces a general and cursory treatment of the following topics: history of philology; classification of languages; origin, development and nature of language, mechanism of speech and hearing; written language.

The work of graduate students in this department is conducted on the "seminary" plan of the foreign universities, the particular subjects being selected by individuals or groups, upon consultation with the professor.

The library is fairly supplied with the standard authors on political science and political economy, and books are "reserved" for the accommodation of classes.

So far as his stated duties will permit, the professor will gladly confer personally or by correspondence with private students in his department anywhere in the State, who may wish to consult about materials or methods of study.

Owing to the changes in the curriculum, this course will not be offered in the year 1886-7

XVIII. RHETORIC AND ELOCUTION.—*Professor Sanford.*

In the three lower classes the work is distributed as follows:

SUB-FRESHMAN, 1st term, Compositions ; 2d term, Elocution.
FRESHMAN, 2d term, Elocution ; 3d term, Compositions.
SOPHOMORE, 1st term, Elocution ; 2d term, Elocution ; 3d term, Orations.

The work in elocution comprises class drill and declamation with individual training. In the Freshman and Sophomore classes, students are encouraged to present original pieces for declamation. The aim is to give to students a style manly, direct and clear ; to avoid exaggeration and sham, and to enable them to read or speak with simplicity and grace.

In composition, weekly exercises are required upon subjects assigned. It is intended by constant practice to give the students ease and readiness in writing, and, by the subjects selected, to accustom them to think and express their thoughts forcibly and correctly upon such topics as educated people need to handle. In the third term of the Sophomore year three orations are required, of which one, at least, must be presented before the class.

All students of the Sophomore class take Rhetoric four times a week during the second term. In this study the aim is not so much to teach the rules and formulas of a text-book as to acquaint the pupil with the beauty and strength of our English tongue when correctly used ; by the study of the best authors, and constant practice under criticism, to make familiar the essentials of vigorous and effective writing and speaking.

Students of the Junior class are required to present in public one oration for each term, the piece being subject to criticism in composition and delivery. Two essays of ten pages of carefully written manuscript may be substituted for each oration.

In the Senior class orations are required for the first and second terms, and essays of twelve pages may be substituted.

XIX. INDUSTRIAL DRAWING.—*Professor Pike.*

Drawing is required of the scientific students of the Sub-Freshman and Freshman classes, is optional for classical students of the same classes, and for literary students during the entire course.

The course is as follows :

SUB-FRESHMAN CLASS—During the first term the students take free hand drawing twice a week, beginning with exercises on straight and curved lines, then drawing simple, plain and solid geometrical figures. This work is followed by instruction in the elements of shading, after which the foregoing is applied in sketching parts of machinery or other objects. The aim of this course is to train the student in representing solid figures on a flat surface ; therefore the drawing is entirely from objects or models, to the exclusion of copying other drawings.

During the second term the students learn the use of the instruments, and draw a series of plates of geometrical problems, elementary projections, and applications of projections.

A special text-book, in pamphlet form, has been prepared by the department for the use of students. It contains data for the required problems, directions for lettering, directions about the use of instruments, and an outline of the whole course of elementary drawing.

FRESHMAN CLASS—The use of the text-book is continued during the first term. Additional examples of projection are first taken up, after which instruction is given by means of models and machines, each student making sketches and taking actual measurements, from which the final drawings are made. Tinting and shading are then taken up, and, after a number of practice plates are made, are applied to one or more projection drawings.

During the second term isometric and cabinet projections, linear perspective and the construction of shadows are taken up. In this, as in projection drawing, the work is done as far as possible from sketches and measurements taken by the students themselves. A text-book, for use in the work of this term, similar in plan to the one used in the previous work, is being prepared by the department, advanced sheets of which, in the form of " blue prints," have been used this year.

Instruments and Materials.—It is very desirable that a good quality of instruments should be secured by beginners, and it is advised that separate pieces be bought rather than sets in boxes, as better instruments can be obtained in that way. The instruments should be of German silver, and care should be taken that the compasses have needle points.

The following outfit is recommended to begin with :

A drawing-board thirty-one inches by twenty-three inches ; a T-square ; a pair of triangles ; a hard pencil ; a right-line pen ; a pair of compasses with pen, pencil and needle points ; a pair of plain dividers ; a scale divided for drawing to scale of one inch, one-half inch, one-quarter inch. and one-eighth inch to the foot ; a piece of India ink; a rubber ; an irregular curve ; six thumb-tacks, and six sheets of Whatman's imperial drawing paper.

XX. PEDAGOGICS.—*Professor Judson.*

A course of Lectures on the Science and Art of teaching, elective to the Senior Class, is given in the third term.

The College of Mechanic Arts.

THE COLLEGE OF MECHANIC ARTS.

FACULTY.

THE PRESIDENT, PROFESSORS HALL, DOWNEY, PIKE (*Secretary*,) INSTRUCTORS HOAG AND BARR.

In this college there are three regular courses of study, viz.: Civil Engineering, Mechanical Engineering and Architecture, leading to the corresponding baccalaureate degrees. Applicants are also admitted to pursue, under direction of the Faculty, one or two distinct lines of study, selected from the regular courses. In the Artisan's Training School, a department of this college, special courses are arranged in shop-work, drawing and mathematics.

The aim of the instruction given in the regular undergraduate courses of this college is to lay a broad and solid foundation in mathematics, mechanics and drawing, so that, with the practice in field, shop and office work given to the students in the respective courses, they shall be fitted for immediate usefulness upon graduation, and after a moderate amount of subsequent practice and experience, be capable of taking charge of important works.

ADMISSION.

Requisites for admission are the same as for corresponding classes of the college of science, literature and the arts; see page 35.

CURRICULUM.

The following schedule shows the studies for the various classes and terms in the different courses:

PREPARATORY CLASS (SUB-FRESHMAN.)

ALL COURSES.

I TERM.	II TERM.	III TERM.
1. Chemistry. 2.* Higher Algebra. (2) Drawing-Free Hand.(3) 3. English, or Latin, or German.	1. Drawing (10 hours). 2. Higher Algebra. 3. English, or German, or Latin.	1. Botany. 2. Solid Geometry. 3. English, or German, or Latin.

FRESHMAN CLASS.

ALL COURSES.

I TERM.	II TERM.	III TERM.
1. Drawing (10 hours). 2. Trigonometry. 3. English, or German, or Latin.	1. Drawing -*Perspective.* 2. Theory of Equations and Anal. Geometry. 3. English, or German, or Latin.	1. Chemistry. 2. Botany. 3. English. 4. Surveying. (twice a week)

SOPHOMORE CLASS.

TERM	CIVIL ENGINEERING.	MECHANICAL ENGINEERING.
I	1. Analytical Geometry. 2. Physics. 3. English or French or Latin. 4. Field Work and Drawing.	1. Analytical Geometry. 2. Physics. 3. English or French or Latin. 4. Shop Work and Drawing.
II	1. Differential Calculus. 2. Physics. 3. English or French. 4. Field Work and Drawing.	1. Differential Calculus. 2. Physics. 3. English or French. 4. Shop Work and Drawing.
III	1. Integral Calculus. 2. Higher Surveying. 3. English or French or Latin. 4. Field work and Drawing.	1. Integral Calculus. 2. Elements of Mechanism. 3. English or French or Latin. 4. Shop Work and Drawing.

During the coming year Plane Geometry will be taught in lieu of Drawing and Algebra.

JUNIOR CLASS.

TERM	CIVIL ENGINEERING.	MECHANICAL ENGINEERING.
I	1. Curves and Earthwork.. 2. Geology. 3 Any Junior first term elective. 4. Topography and Drawing.	1. Kinematics. 2. Descriptive Geometry. 3. Any Junior first term elective. 4. Shop Work and Drawing.
II	1. Mechanics. 2. Hydraulics. 3. Mineralogy. 4. Drawing or Shop Work.	1. Mechanics. 2. Hydraulics, etc. 3. Mineralogy. 4. Drawing and Shop Work.
III	1. Mechanics. 2. Testing Materials. 3. Any Junior third term elective. 4. Railroad Work and Drawing.	1. Mechanics. 2. Testing Materials. 3. Any Junior third term elective. 4. Shop Work and Drawing.

SENIOR CLASS.

TERM	CIVIL ENGINEERING.	MECHANICAL ENGINEERING.
I	1. Practical Astronomy. 2. Geology. 3. Arches, Retaining Walls, etc. 4. Drawing.	1. Applied Descriptive Geometry. 2. Geology or Astronomy. 3. Analytical Chemistry. 4. Drawing.
II	1. Roofs, Trusses, etc. 2. Stereotomy. 3. Any Senior second term elective. 4. Drawing.	1. Steam Engines and other Motors. 2. Experimental Mechanics. 3. Any Senior second term elective. 4. Drawing.
III	1. Designs, Specifications, etc. 2. Bridges and Thesis. 3. Any Senior third term elective. 4. Drawing.	1. Designs, Specifications, etc. 2. Machine Tools and Thesis. 3. Any Senior third term elective. 4. Drawing.

ARCHITECTURE.

This course coincides with that in civil engineering except as follows :

1. The drawing throughout the course is especially arranged for architectural work.

2. In the second term of the Sophomore year shop work and drawing are substituted for field work and drawing.

3. In the first term of the Junior year, history and orders of architecture are substituted for curves.

4. In the second and third terms of the Senior year, building, construction and lectures on decoration are substituted for bridge work.

5. In the third term, Senior year, the designs and specifications are those of buildings instead of bridges, etc.

The rhetorical exercises of this college consist of papers or reports each term, on professional subjects approved by the professor in charge of the course in which the student is enrolled. The labor of preparing these papers or reports is not designed to exceed that required by the rhetoricals in the college of science, literature and the arts. As a condition of graduation, each student is required to present a satisfactory thesis, with the necessary drawings, which are accepted in lieu of other rhetoricals in the last term of the Senior year. These theses are to be deposited in the university library.

GRADUATION.

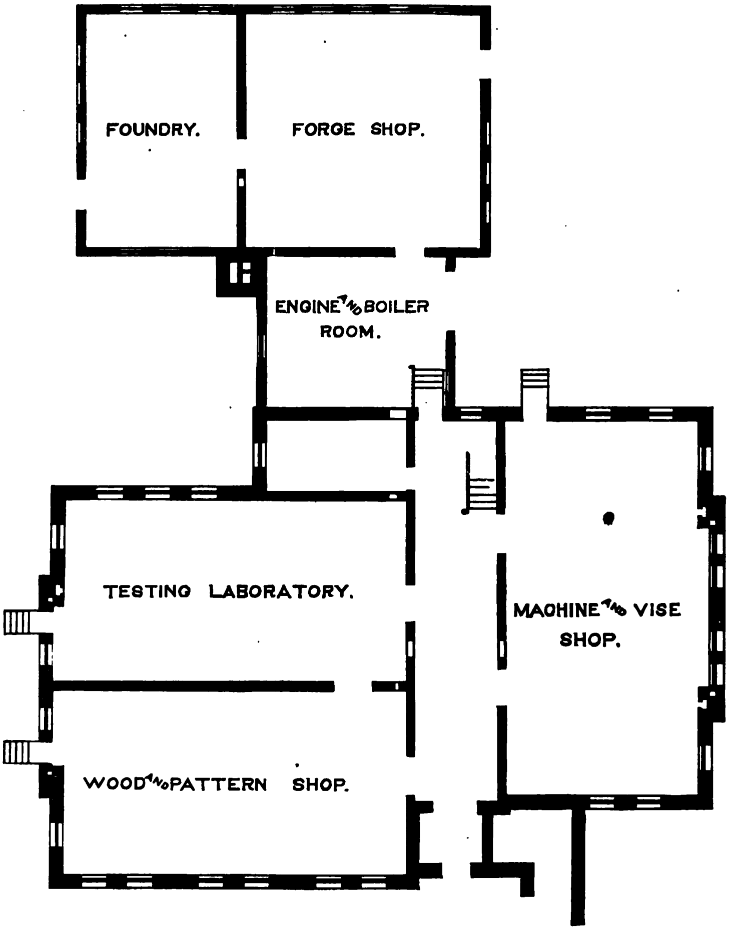
Students completing the foregoing regular courses to the satisfaction of the faculty, are entitled respectively to receive appropriate baccalaureate degrees, to-wit: Bachelor of Civil Engineering, Bachelor of Mechanical Engineering, Bachelor of Architecture.

Students completing either of the courses in the Artisans' Training School may receive certificates of proficiency from the faculty.

Special students receive certificates for successful examinations in the branches pursued. Any person is entitled to undergo examination in any subject, at convenient times; and if such person pass in all the studies and exercises of any course, he is entitled to the appropriate degrees.

METHODS OF INSTRUCTION.

Instruction in the several subjects pertaining to civil and mechanical engineering and architecture is given by text-books, lectures. reading in the general library, and practical exercises; the theories taught in the class-room being applied in the solution of practical problems and the construction of original drawings. Accurate tests of the strength of all the most common materials of construction are made by the students by the use of the testing machine. Among the important tests are those on the deflection and ultimate strength of full-sized beams. Careful records are kept by the students of each test, and the moduli of elasticity and rupture are calculated from the data thus obtained. The students are also required to visit the various machine shops, bridges and important structures in the vicinity, and make reports upon them accompanied by sketches and necessary measurements. The students in mechanical engineering receive a thorough drill in the use of tools in a series of instruction shops, thus fitting them for superintending the construction of the designs which their training in class and drawing-rooms will prepare them for. Instruction is also given in the actual use of the steam


FOUNDRY.
FORGE SHOP.
ENGINE and BOILER ROOM.
TESTING LABORATORY.
MACHINE and VISE SHOP.
WOOD and PATTERN SHOP.

BASEMENT.

engine indicator, and by its use, in connection with other observations, these students make an accurate test of the power of the university engine. Field practice is a portion of the regular course of civil engineering. The classes in surveying are drilled in the measurement of land already divided up; in the laying out of fields of given shape and area; in the subdivision of land as practiced by the government surveyors; and in the solution of various geometrical and trigonometrical problems from data taken by the students themselves. In railroad work the students have practice in laying out curves, taking levels, cross sectioning, staking out; in fact they do all the work of locating a railroad line, from the preliminary survey up to the point of actual construction. In topography the classes make a complete survey of a piece of land with diversified surface, and make a finished drawing showing the contour lines and other details. In the drawing-room the students in the various courses receive thorough drill in making both working and finished drawings from plates, from machines and structures already built, and from original designs of their own.

APPARATUS.

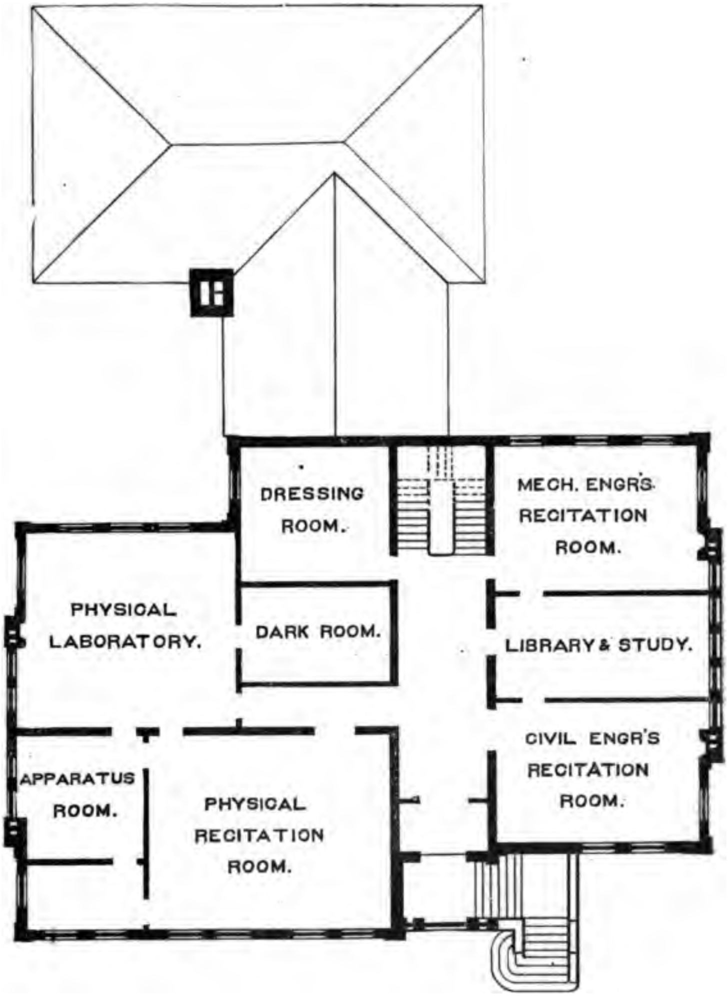
This college possesses the following apparatus:

For mechanical engineering—The tools and instruments referred to in connection with the work shops, engine room and testing laboratory; a number of models of machinery, including a set of belting models, and one of screw threads; a collection of drawings or plates of machine construction; a pair of very accurate and highly finished test gauges, registering pressures up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure guages, and a pump for testing boilers.

For civil engineering—a plain table, a compass, three transit instruments (one with solar attachment), two levels with rods, two chains, three tapes, pins, transit rods, a self reading rod, a hand level, several models of bridges and roofs, a few drawings and tools for modeling in the course in stereotomy.

For general use—a 50,000 pounds testing machine, shown in Plate 1, and mentioned further under the testing laboratory; the plates and models used in the drawing rooms; apparatus for taking blue prints, with adjustments for turning the paper so as to be always perpendicular to the direction of the sun's rays, made from designs by the department, and which is used by the engineering students in copying drawings; a photographic outfit, by means of which photographs from four by five to eight by ten inches can be taken.

The United States Coast Survey has furnished the University with


DRESSING ROOM.
MECH. ENGR'S. RECITATION ROOM.
PHYSICAL LABORATORY.
DARK ROOM.
LIBRARY & STUDY.
CIVIL ENGR'S RECITATION ROOM.
APPARATUS ROOM.
PHYSICAL RECITATION ROOM.

FIRST FLOOR.

a set of standard weights and measures which have been put under the charge of this college. The complete set embraces: 1. A yard scale divided to inches and tenths, with a matrix for comparison of end yards. 2. Weights from one grain to twenty-five pounds. 3. Liquid capacity measures, a pint, a quart and a gallon. 4. Dry capacity measures, a quart, a half peck, a peck, and a half bushel.

THE BUILDING.

The new building, now being erected for the college of mechanic arts, will contain commodious and well-lighted rooms, in the basement and one-story wing, for the work shops and testing laboratory of this college. The first floor will provide recitation rooms, laboratories, apparatus rooms, study and dark room for the department of physics; also civil and mechanical engineering recitation rooms, with a study connected. The second floor will be devoted to the general drawing room, engineering drawing and apparatus rooms, dark room, and blue-print room. The building will be well ventilated, heated by steam and supplied with water from the city water works.

It is expected that this building will be completed and thoroughly equipped by the beginning of the University year 1886-7.

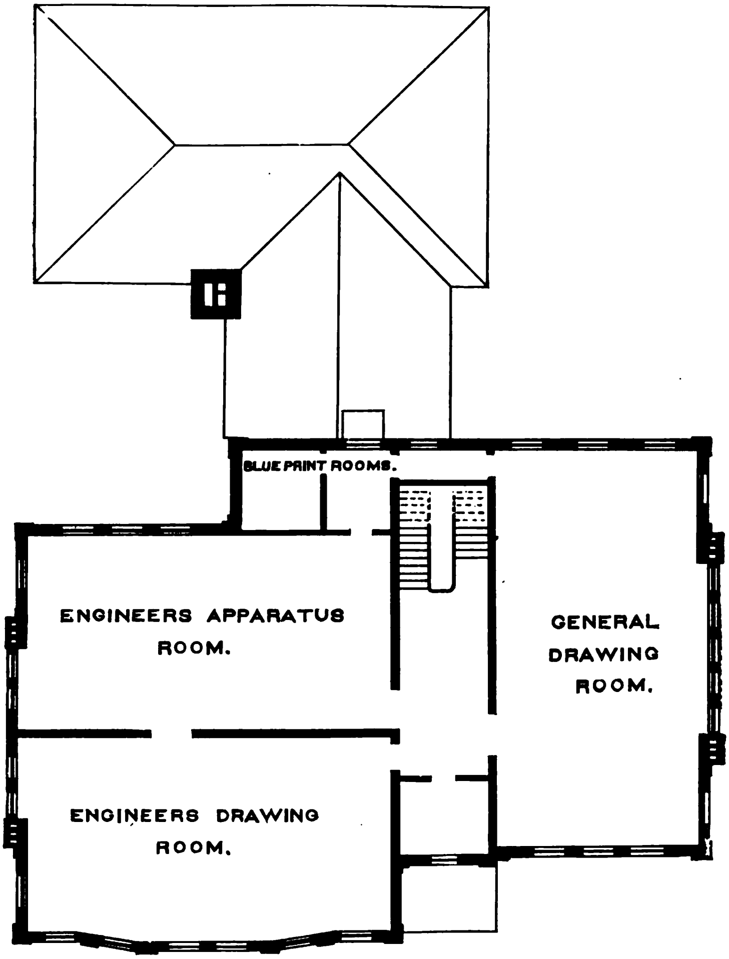
The perspective of this building is shown on page 57, and Plates 2, 3 and 4 show the floor plans.

TESTING LABORATORY.

A room, 24x46 feet, will be fitted up for the testing laboratory. It wlll be supplied with power and will contain a 50,000 pounds testing machine, manufactured by Tinius Olsen, of Philadelphia, which can be adapted for compressive, tensile, transverse, torsion and shearing tests. Other pieces of apparatus have been designed by the department to be used in connection with the testing machine in making tests of full sized beams, up to 30 feet in length. The machine as adapted for testing large beams is shown in Plate 1. An instrument recently purchased for use in connection with tensile tests, is capable of accurately measuring extension to one ten-thousandth of an inch. There will be added a cement tester, a dynamometer for measuring transmitted power, and other apparatus for making mechanical tests.

DRAWING ROOMS.

The general drawing room, 25x49 feet, is furnished with drawing tables for the use of classes in geometrical and free-hand drawing. There are also cases and cabinets for holding drawings and drawing *boards.* A considerable collection of prints, drawings and models,



SECOND FLOOR.

including a full set of Schrœder's models for descriptive geometry for lessons and illustrations, has been made.

The engineering drawing room, 24x44 feet, contains tables, cases, etc., for students in civil and mechanical engineering, architecture and other advanced work. An engineering apparatus room joins the drawing room, and connected with these are blue-print and dark rooms, fitted up for use in duplicating drawings by the "blue-print" process or photography.

WORK SHOPS.

The basement of the new building will be occupied by the testing laboratory, machine and vise shop and wood-working shop; the wing, by the engine and boiler room, forge shop and foundry.

It is the intention to equip these shops completely with tools from leading manufacturers, which will represent the best American practice. Each shop will accommodate ten students at a time, which is as large a number as can be advantageously instructed together. The capacity of the shops can be increased to meet any probable requirements by forming additional classes.

The instruction given is that of the "Russian System," in which the leading idea is to teach principles rather than to produce objects of commercial value. It is believed that the greatest progress can be made in a given time with this method, as the student proceeds, by a carefully-planned series of exercises, from the simplest to the most difficult operations, learning the processes but avoiding the repetition of the ordinary shop. So far as is consistent with this system, the work is adapted to parts of some machine or structure in common use; and after finishing the exercises referred to above, the class will build some complete machine or structure, as a review and application of the preceding work.

Shop work is required of students in mechanical engineering, in divisions A and B of the Artisan's Training School, and wood work is required of students in architecture and civil engineering.

THE ENGINE ROOM.—The Engine and boiler room, 20 x 24 feet, will be provided with an automatic cut-off engine, of modern type, capable of developing thirty-five horse powers with an initial steam pressure of eighty pounds per square inch, cutting off at one-quarter stroke. A steel boiler of ample size, furnished with a feed pump and heater, will supply steam. A dynamometer, calorimeter, pyrometer, revolution counter, tanks, steam-engine indicators, gauges, thermometers, and other instruments required for complete steam-engine and

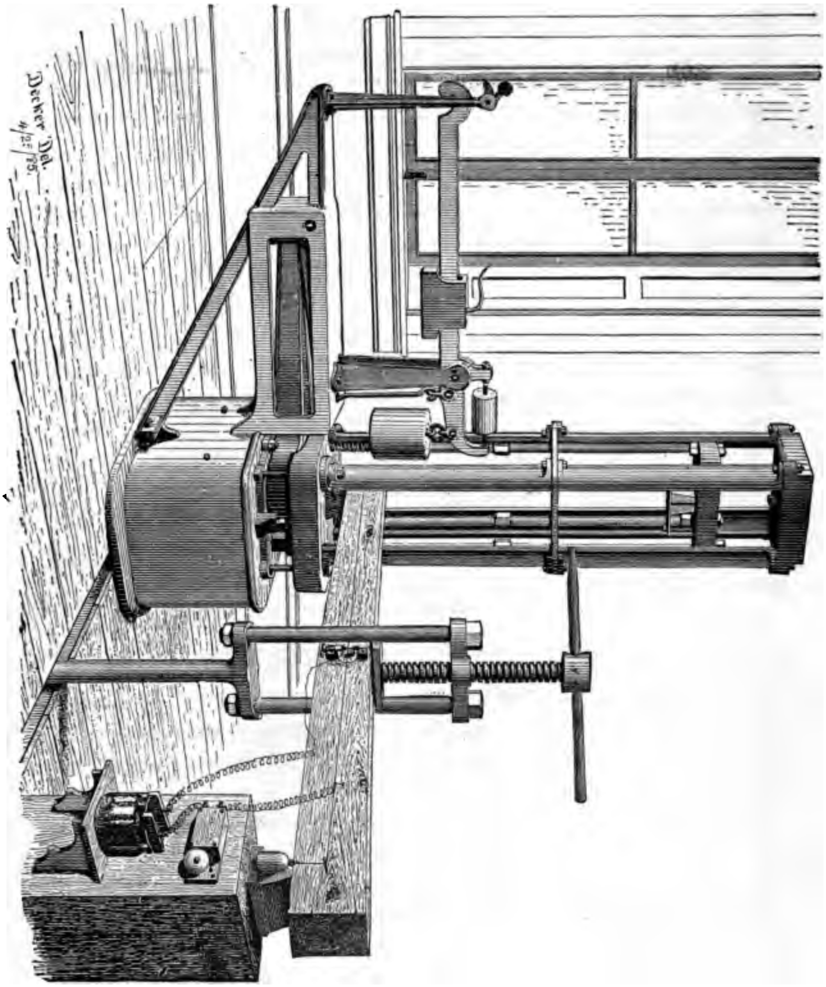

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PLATE 1.

boiler tests, will be provided for the use of students in experimental work.

THE MACHINE SHOP.—The machine and vise shop, 25 x 50 feet, will have two speed lathes, ten engine lathes of various sizes, a planer, shaper, universal milling machine, vertical drill press, emery tool grinder, grinding attachment to lathe, benches with ten vises, surface plates, standard gauges, taps, dies, reamers, drills, chucks, and other hand tools and accessories for practice in machine tool and vise work.

THE WOOD-WORKING SHOP.—The shop for pattern making and general wood work, 24 x 48 feet, will contain benches with ten vises, ten lathes, ten sets of hand and lathe tools, two circular saws, a jig saw, band saw, planer, boring machine, grindstone, and other tools for use in the courses in wood work and pattern making.

THE FORGE SHOP.—The forge shop, 31 feet square, will be provided with a portable hand forge, ten stationary forges with anvils and sets of tools, a blower, exhaust fan, hand drill press, drills, taps, dies, sledges, swages, a grindstone, and the other tools generally used in blacksmithing.

THE FOUNDRY.—The foundry, 20 x 30 feet, will contain a 15-inch cupola, brass furnace, core oven, cinder mill, moulding tools and benches, core plates, arbors, sweeps, ladles, crucibles, and all of the tools and materials ordinarily needed in moulding and casting iron, brass or white metal.

THE ARTISANS' TRAINING SCHOOL.

This school has been established as a department of the College of Mechanic Arts to meet the wants of mechanics and others, and takes the place of the courses in shop work and drawing heretofore given.

The students of this school are separated into four divisions, viz:

A. Those who wish to devote themselves wholly to shop work and industrial drawing as a preparation for entering upon active life.

B. Those desiring to receive instruction in mathematics, as well as in shop work and drawing.

C. Those whom circumstances prevent from taking either of these courses, and who wish day instruction in drawing.

D. The evening drawing class for working artisans.

A. DIVISION.

I. Term.	*II. Term.*	*III. Term.*
Shop work.	Shop work.	Shop work.
Drawing.	Drawing.	Drawing.

B. DIVISION.

I. Term.	*II. Term.*	*III. Term.*
Shop work.	Shop work.	Shop work.
Drawing.	Drawing.	Drawing.
Mathematics.	Mathematics.	Mathematics, or Surveying.

C. DIVISION.

Industrial drawing, beginning at any time, but to be pursued consecutively.

D. DIVISION.

Twenty-five evening lessons in mechanical drawing, beginning October 11, at 7:30 P. M.

ADMISSION.

Applicants for admission to any of the divisions must be at least fifteen years of age, and must pass examinations as follows: A Division—In writing and arithmetic; B Division—In writing, arithmetic, elementary algebra and plane geometry. Members of this division who pass examinations in geography and United States history may be allowed to select studies from the collegiate department under direction of the faculty; C and D Divisions—No examinations required.

METHODS OF INSTRUCTION.

In the courses of the Artisans' Training School the instruction in shop work is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the student in the use of tools, leaving out the idea of construction except in so far as it may not interfere with instruction. The function of this school being to teach the use of tools in general, rather than any particular trade, much time can be saved by devoting the entire attention of both student and instructor to the manipulation of the tools, and avoiding the repetition of the same operation which necessarily occurs when construction is an object rather than an incidental. The preparation of exercises, in any particular branch of work, consists in first carefully analyzing the various operations and reducing them to their simplest forms, and then classifying them in such a way as to have them succeed each other in the order of their difficulty. Thus, if we examine into the work usually done at the vise, we see that the greater part of the work done there is made up of various combinations of the following operations:—Filing to straight or curved lines, either between two lines or to one line alone, filing to template, fitting, free hand filing, with and without the hand vise, sawing and chipping plane and curved surfaces. Starting, then, with these operations to be taught, a course is designed which shall take them up one at a time and apply them to wrought iron, cast iron, and steel. The other courses are on the same general plan as that outlined for vise work.

The drawing in this school is conducted on the same plan as in the engineering courses, the students first using the text-book prepared for the department, and afterwards varying their work to meet their individual requirements.

In mathematics the instruction covers algebra, solid geometry and trigonometry, taught with special reference to the needs of this class of students, and giving many applications to practical matters.

REGULATIONS.

All members of this school are required to deposit $5.00 with the Registrar of the University, which will be returned to members of divisions A, B and C when connection with the school ceases, less such charges as may be made for damage to tools or other property, and to members of division D when their connection ceases, if they have been regular in attendance, less such charges for damages as may be made. Divisions A, B and C will come under general regulations as to attendance, etc.

Students of the B Division should, if possible, enter at the beginning of the year; of the A Division at the beginning of the term; of the C Division preferably at the beginning of terms, and of D Division at the opening of the class.

For further information as to this college apply in person or by letter to the secretary of the faculty, PROF. WM. A. PIKE.

The College of Agriculture.

THE COLLEGE OF AGRICULTURE.

THE BUILDING.

THE FACULTY.

THE PRESIDENT AND PROFESSORS PORTER, DODGE, DOWNEY, FOLWELL, HALL, JUDSON, MACLEAN, NACHTRIEB, PIKE AND SANFORD.

The College of Agriculture is both National and State in its origin; its objects and aims are defined by the following extracts from the laws of Congress, and of the Legislature of Minnesota.

"Its leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." —*Act of Congress* 1862, *Sec.* 4.

"The location of the University of Minnesota, as established by existing laws, is hereby confirmed, and said institution is hereby declared to be *The University of the State of Minnesota.* All the rights, immunities and endowments heretofore granted or conferred, are hereby perpetuated unto the said University; and all lands which may be granted hereafter by Congress, or other donations for said University purposes, shall vest in the institution referred to in this section." —*Art* 8 *of the State Constitution.*

"The object of the University of Minnesota, established by the Constitution, at or near the Falls of St. Anthony, shall be to provide the means of acquiring a thorough knowledge of the various branches of literature, science and the arts, and such branches of learning as are related to Agriculture, and the Mechanic Arts, including military tactics, and other scientific and classical studies."—*Sec.* 1, *Chap.* 10. *Gen. Laws of* 1872.

"There shall be established in the University of Minnesota, five or more Colleges or Departments, that is to say, a College of Science, Literature and the Arts, a College of Agriculture, including Military tactics, a College of Mechanic Arts, a College or Department of Law, and also a College or Department of Medicine."—*Sec.* 2, *Chap.* 10, *Gen. Laws of* 1872.

"In addition to all the rights, immunities, franchises and endowments, heretofore granted to, or conferred upon, the University of Minnesota, for the endowment, support and maintenance thereof, there shall be, and is hereby inviolably appropriated and placed at the disposal of the Board of Regents thereof, to be drawn from the State Treasury, upon the order of the President, drawn upon the State Auditor, countersigned by the Secretary of the Board, and payable to the order of the Treasurer of the Board, all the interest, and income of the fund to be derived from the sale of all the land granted and to be granted to the State of Minnesota, by virtue of an act of Congress, entitled "An act donating land to the several states and territories, which may provide Colleges for the benefit of Agriculture, and the Mechanic Arts," approved July 2, 1862, and also all such gifts, grants and contributions, to the endowment thereof, as may be derived from any and all such sources."—*Sec.* 7, *Chap.* 10, *Gen. Laws of* 1872.

The above section placing the income derived by the State from the so-called "Agricultural College" land grant, at the disposal of the Board of Regents, imposes upon them the duty of carrying out the provisions of the act of Congress making the grant referred to in that section, and in the discharge of this duty they have made most ample provision for the "Liberal and practical education of the industrial classes in the several pursuits and professions of life," not only by the establishment of the general courses of study embraced in the Colleges of Science, Literature and the Arts, but by the organization of the special College of Agriculture, and the Mechanic Arts, where the principles of science receive their practical application.

The course of studies, and exercises in the College of Mechanic Arts, are fully detailed in the circular of that Department.

THE COLLEGE OF AGRICULTURE

is designed to give to young men, who may desire it, the advantages of a thorough, liberal, and practical education, not only to prepare them for the successful prosecution of Agriculture, in all its branches, but to secure to the student the mental discipline and training necessary to qualify him for any other calling or profession, and to discharge intelligently the duties of an American citizen.

The period of study requisite for graduation will extend through five years, but the course of study is so arranged as to be complete and progressive, and a pupil who can remain only one, two or three years, will find the course of study prescribed, such as can be pursued to the best advantage, but full liberty of choice is permitted, of any branch of instruction taught in the University, which can be followed with advantage, such instruction being *optional*, and not a substitute for any regular study.

FACILITIES FOR INSTRUCTION.

Students in the College of Agriculture receive the benefit of the library and apparatus of the University, as well as of those belonging to the college. The whole may be enumerated as follows:

(1.) The general library of the University, containing more than 20,000 volumes, and receiving frequent additions. Many volumes are especially devoted in a practical manner, to the subjects of agriculture, horticulture, tree culture, stock raising and veterinary science. Besides these there are several hundred volumes on botany, zoology, anatomy, physiology, and other sciences related to agriculture.

(2.) The general museum of the University, containing a large collection of minerals, casts of extinct animals, stuffed animals, and birds.

(3.) The museum of technology, containing materials and products used in illustrating manufacturing processes.

(4.) The museum of agriculture, containing at present a collection of models of machines and implements ; a collection of the seeds of garden vegetables, grain and grass seeds in glass jars ; a collection of grains and grasses in the straw ; a collection of fruits in alcohol ; cabinets of the insects of Minnesota ; a large collection of woods from the United States Department of Agriculture ; a collection of plates and lithographs ; miscellaneous objects and materials used in agriculture. Donations always welcome.

(5.) Chemical and physical laboratories, supplying opportunities for the student to practice with his own hands.

(6.) Drawing rooms.

(7.) Engineers and surveyors' instruments, and a testing machine.

(8.) The plant house, 24 x 26 feet, with a recent addition of half these dimensions supplying plants and flowers for the study of botany, and apparatus for instruction in propagation and the care of plants.

(9.) The College of Mechanic Arts, with its departments of vise work, forge work, wood work, and foundry, where a thorough knowledge of the use of tools, and the processes employed in these branches may be acquired.

THE EXPERIMENTAL FARM.

Consisting of 250 acres of most valuable land, is located between St. Paul and Minneapolis, adjoining the State Fair Grounds, and within fifteen minutes ride of either city, by the Manitoba R. R. from St. Anthony Park station, or ten minutes from the University. It contains every variety of soil and exposure required for illustrative and experimental work, and is furnished with a full equipment of buildings, stock, implements and machinery.

The buildings are nearly completed, and are models of taste and convenience. The Farm House is located on an elevation, commanding a full view of St. Paul, the State Fair Grounds, Hamline University, and Macalester College. It is abundantly supplied with hot and cold water, is heated throughout by steam, and ample accommodations for the family of the Professor in charge, the working force of the farm, and a large class of students in practical agriculture.

The barn is one of the largest, and best arranged buildings of its kind in the country. It is what is known as a "side-hill barn," and consists of a main building and two wings. The first is 56 feet by 100 feet, with 24 feet posts, on a ten feet foundation or basement. The south wing is 30 feet by 100 feet, with 16 feet posts, and the east wing is 42 feet by 100 feet with 16 feet posts, both on same height of wall as the main buildings, the whole enclosing the barn yard opening to the south and east, and furnished with an ample supply of pure water at all seasons of the year. The basement affords stable room for all the stock of the farm, together with boiler-room, silos, and root cellar, while the upper floors contain the work-shop, tool room, seed room, feed bins, granaries, and storage for all the hay, grain, straw, implements and machinery.

The farm is well stocked with fine specimens of the best breeds of domestic animals, designed to illustrate their characteristics and value for various purposes, and for experiments in feeding, breeding and management and their adaptation to the agriculture of our State.

OBJECTS OF THE FARM.

The farm is designed to accomplish the following purposes:

(1.) To furnish to students practical illustration in the field, stable, orchard, garden and vineyard, of the instruction given in the class-*room*, and laboratory.

(2.) To train young men in all the details of practical agriculture.

(3.) To aid students in defraying by their labor a portion of their expenses while acquiring their education.

(4.) To carry on the work of an Agricultural Experiment Station, and to assist by scientific investigation and experiment, in determining the adaptation of new varieties of grains, grasses, fruits and vegetables to the soil, climate and wants of Minnesota, and to distribute the results of such investigations among the farmers of the State.

SCOPE OF INSTRUCTION.

The object of this college is to teach practical and scientific agriculture, combined with such other branches of learning as are necessary for mental discipline and training, and such as constitute a liberal education, and embrace the following studies and exercises:

IN PRACTICAL AGRICULTURE.—History of Agriculture; brief review of chemical composition and physical properties of air and water as related to the soil and vegetation; the chemical constituents and practical classifications of soils; properties, peculiarities, treatment and adaptations of each kind; reclamation and improvement of soils, including drainage, subsoiling, trenching, altering, fallowing, paring and burning, preparatory tillage, road making and fencing; manufacture, preservation and application of manures and stimulants; green manuring and irrigation; farm implements and machinery; production, management and sale of the different crops; the different breeds of farm animals, their characteristics and adaptions; breeding, rearing, feeding and management for different purposes to which each is suited; selection and purchase of farms; the situation, relative position, size and internal management of farm buildings, and their adaptation to purposes for which they are intended.

IN HORTICULTURE.—Relations of heat, light, moisture and food to plant growth, and the means of controlling their supply and intensity, plant houses, hot beds, etc.; soils and manures, and their manipulation; propagation of plants; grafting, budding, pruning, training, etc.; planting and transplanting; hybridizing, crossing, and selecting; cultivation of the apple, pear, plum, and other large fruits; cultivation of the currant, strawberry, raspberry, cranberry and other small fruits; kitchen gardening, market gardening, landscape gardening, and floriculture.

IN ARBORICULTURE.—Reasons for planting forest trees; what trees to plant; method of propagating; care in the nursery; special culture of each species.

IN AGRICULTURAL CHEMISTRY.—A study of the elements of the volatile parts of plants, as carbon and oxygen; a study of the organic compounds of plants, as water, starch and sugar; a study of the elements of the ash of plants and their compounds, as potassium, calcium, iron, sulphates and phosphates.

IN VETERINARY MEDICINE AND SURGERY.—Prevention and treatment of diseases and injuries of the domestic animals.

IN ECONOMIC ENTOMOLOGY.—General characters of insects; characters and peculiarities of those families containing useful or injurious members, together with a special study of the more important individuals of these families.

IN COMPARATIVE ANATOMY AND PHYSIOLOGY.—Anatomy, physiology and hygiene of the domestic animals.

ECONOMICS.—Farm accounts, grain raising, stock raising, dairying. general farming, fruit culture, market gardening, and other specialties; relations and sequence of farm operations; legislation relating to agriculture; relations of agriculture to commerce, manufactures, labor, government, taxation, etc.

Besides the foregoing subjects, the course of study will embrace Mathematics, Botany, History, English, Physics, Biology, English Literature, Drawing and shop work, as will be seen by examination of the tables showing course of study for each year.

REQUIREMENTS FOR ADMISSION.

Candidates for admission to the sub-freshman class, are required to sustain an examination in the following studies:

I. **Geography.**—*Descriptive Geography* as contained in Harper's Swinton's Common School Geography, or any equivalent works.

II. **History.** *United States History*, as contained in the text-books of Quackenbos, Eclectic, Ridpath, or their equivalent.

III. **Arithmetic.**—*Complete;* from such treatises as Robinson, Wentworth, Olney, etc.

IV. **English Grammar.**—Complete, including sentential analysis, as contained in the best school grammars.

V. **English Composition.**

COURSE OF INSTRUCTION.

SUB-FRESHMAN YEAR.

I	II	III
Agriculture, (Farm Pract.)	Agriculture. (Lectures.)	Agriculture, (Pract.)
Chemistry.	Chemistry.	Botany.
Algebra. (2)	Practical Mathematics.	Geometry.
Drawing. (3)	Drawing.	Shop Work.
	Farm Accounts.	
	Shop Work.	

FRESHMAN YEAR.

I	II	III
Agriculture, (Farm.)	Agriculture, (Lectures.)	Horticulture, (Farm.)
Drawing.	Anat. Phys. and Hygiene.	Botany.
Entomology.	Drawing,	Chemistry.
Natural Philosophy.	Natural Philosophy.	Natural Philosophy.
Trigonometry.	Shop Work.	Surveying.

SOPHOMORE YEAR.

I	II	III
Agriculture, (Farm.)	Agriculture, (Lectures.)	Agriculture, (Farm.)
Chemistry, (Organic.)	History.	History.
English.	Zoology.	Zoology.
Shop Work.	Shop Work.	Shop Work.

JUNIOR YEAR.

I	II	III
Animal Physiology.	Farm Crops, (Lectures.)	Agr. Expt. Station Work.
Vegetable Physiology.	Mineralogy.	Astronomy.
Chemistry, (Analytical.)	Chemistry, (Lab. Pract.)	Chemistry, (Lab. Pract.)
English.	English.	Psychology.

SENIOR YEAR.

I	II	III
Soils and Fertilizers.	Agricultural Chemistry.	Economic Geology.
Geology.	Farm Economy.	Farm Animals.
English,	Political Science.	English.
Veterinary Science.	Veterinary Science.	Veterinary.

Rhetorical work, and Oratory, shall be pursued during the entire course.

Students completing any year of the above course, shall be entitled to receive a certificate to that effect; those completing the entire five years course shall receive the degree of " Bachelor of Agriculture."

SCHOOL OF PRACTICAL AGRICULTURE.

The design of this school is to give young men a thoroughly practical knowledge of American Agriculture, in all its branches, and to illustrate the instruction of the class room and laboratory.

Pupils in this department will reside upon the University farm, and be regularly employed in all the operations ; they will not be required to engage in regular studies or recitations, but will have access to the library of the University, and will be directed in their readings. Practical lectures and instructions will be given upon those branches of work which from time to time engage their attention.

Labor will be paid for at the rate of from five to fifteen cents per hour, depending upon the age, skill, and industry of the pupil.

Board, washing, furnished room, fuel, and lights, will be charged at their cost, and the balance to the credit of the student paid to him in monthly settlements. No student will be retained, whose labor will not be equivalent to his board.

This school will open May 1st and close Nov. 1st, but a limited number of students, who wish to prosecute their studies in the winter management of stock and the dairy, can remain the entire year.

Regular and systematic labor will be required of all students on the farm, and strict conformity to all rules and requirements.

All candidates for graduation in the College of Agriculture, will be required to take during their course, the equivalent of two full sessions in this school.

The following students are at present enrolled in this school:

Charles G. Allen, Scandia, Minn.

Alfred P. Bryson, Montreal, Minn.

Eugene U. Bylles, Brown's Valley, Minn.

George Matilé, Montreal.

Frank Heffron, Minneapolis.

Graduate Department.

GRADUATE DEPARTMENT.

This department is designed to meet the wants of graduates of colleges who desire to pursue special lines of study further than is possible in undergraduate courses. It is not intended to be a mere extension of the college course in the interest of general culture, but rather a school for the education of *specialists* in the various branches of knowledge offered. The work required will be much less general than the subjects as stated below would indicate, the object being to secure high attainments in something, rather than a superficial knowledge of everything. The department is open to all graduates of colleges, whether desiring to become candidates for the master's degree or not.

The regulations governing this department are contained in the following resolutions, adopted by the general faculty in April, 1885.

I. Master's degrees in science, literature, and the arts, will be conferred on bachelors of this or of any other reputable college or university, who, not sooner than two years after graduation, pass an examination on certain prescribed lines of classical, scientific or literary studies, and present a satisfactory thesis

II. Candidates are required to present their applications on the proper blank, stating the particular degree desired, the several subjects selected by them in which to be examined, and the titles of their theses. Graduates of other colleges or universities will exhibit their diplomas on filing their applications. After the approval of the application by the faculty of the college, no changes or departures will be permitted.

III. The following lines of study are offered to candidates.

1. Mathematics, including Astronomy.
2. Natural Science, including Botany, Zoology, and Anthropology.
3. Physical Science, including Chemistry, Physics, Mineralogy, and Geology.
4. Philosophy, including Logic.
5. Political Science, including International Law, History of Civilization, and Comparative Philology.

6. Greek Language and Literature.
7. Latin Language and Literature.
8. German Language and Literature.
9. Romance Languages and Literatures.
10. English Language and Literature, including Rhetoric.
11. Scandinavian Languages and Literatures.
12. History.

IV. The amount of work done by the candidates shall be equivalent to that done by the Senior class, viz: three terms work on three distinct subjects each term, with a thesis in addition.

V. The following is the schedule of work requisite for the master's degrees:

FOR MASTER OF ARTS.

1. Greek and Latin.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a classical subject.

FOR MASTER OF SCIENCE.

1. Two distinct lines of science.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a scientific study.

FOR MASTER OF LITERATURE.

1. German and Romance Languages.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a literary subject.

VI. The time allowed for each line of study shall be from one to three terms.

VII. The proficiency of candidates shall be determined by examinations only.

VIII. A residence at the University is not required of candidates for the masters' degrees, but instruction will be given to such candidates as are resident and desire it, by the professors in charge of the studies pursued.

IX. All examinations shall be held at the University.

X. All the regulations governing candidates for the master's degrees shall apply to the candidates for the second degree in the college of mechanic arts. The following is a schedule of work *requisite* for the degree:

FOR CIVIL ENGINEERING.

1. Some subject in civil engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in civil engineering.
4. A thesis on a subject in civil engineering.

FOR MECHANICAL ENGINEERING.

1. Some subject in mechanical engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in mechanical engineering.
4. A thesis on a subject in mechanical engineering.

FOR ARCHITECT.

1. Some subject in architecture.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in architecture.
4. A thesis on a subject in architecture.

XI. Bachelors of this or any other reputable college or University, not desiring to take a degree, are allowed, subject to all the regulations governing the candidates for degrees, to pursue and to be examined in the studies of the post-graduate courses, and a certificate of attainments will be given them if they desire it.

For the year 1886-87, the following subjects will be offered:

I. MATHEMATICS.

1. An advanced course in Co-ordinate Geometry.
2. An advanced course in Differential Calculus.
3. An advanced course in Integral calculus.

The following subjects are offered to those who do not elect them in their under-graduate course.

1. Analytical Geometry.
2. Differential Calculus.
3. Integral Calculus.
4. Quaternions.

II. ASTRONOMY. A course in Practical Astronomy.

III, CHEMISTRY.—Graduate students desiring to add to their knowledge of chemistry, will find here good facilities for laboratory practice; and they will be enabled to take up such practice at almost any point. The aim of the department will be to meet the wishes on the one hand of individual graduate or special students pursuing the more practical branches, as assaying, toxicology, etc., and on the other hand of those who seek a better familiarity with the general and theoretical portions of the science. Graduate students will be invited to attend the lectures on organic, or industrial and theoretical chemistry, with the undergraduate classes, in which these lectures are regularly given.

IV. GREEK.—Greek Poetry.

1. The Lyrics, with critical reading of authors ; or,
2. The Dramas, with critical reading of authors.

V. GERMAN.—Alternative courses.

I. *a.* Niebelungenlied.
   b. History of German Literature during the 12th and 13th Centuries.
II. *a.* Lessing's Laocoon and Dramaturgy.
   b. History of German Literature from 1749 to 1832.

VI. ROMANCE LANGUAGES.

1. Old French. Historic Grammar and Philology.
2. Modern French. A systematic study of some special topic, as the Philosophy of the 19th Century ; the rise of Democracy ; the contributions of France to Science ; or the literature of some century.
3. The element of the Italian or Spanish language.

VII. HISTORY.—The constitutional history of England.

VII. GEOLOGY AND MINERALOGY.

The granite rocks of Central Minnesota, with such preliminary mineralogical work as may be found necessary.

IX. ENGLISH. History of Old and Middle English Literature. The pupils will read under the direction of the professor, in such text books as: Geschichte der Englischen Litteratur von Bernhard ten Brink, Grundriss zur Geschichte der Angelsachsischen Litteratur, von Dr. Richard Wuelker, Henry Morley's English Writers. Specimens in the publications of the early English Text Society, and the collections of Skeat & Morris will be used. Occasional papers will be presented by the pupils and the professor.

X. LATIN.

(*a*) Roman Law. Gaius and Alpian.
(*b*) Roman Elegiac Poetry.

The College of Medicine.

THE COLLEGE OF MEDICINE.

THE FACULTY.

The President, Professors Hewitt, Smith, Staples, Wood, Hand, Simpson, Leonard, Dodge, and Millard (*Secretary*.

No instruction is offered in this college. The faculty is an examining body solely.

It is the duty of the faculty of this college to test and ascertain by examinations, experiments, and other appropriate means, the qualifitions, proficiency, and skill of all candidates for degrees in medicine and surgery, and to recommend them to the Board of Regents for graduation accordingly.

EXAMINATIONS.

These are:

I. THE ENTRANCE EXAMINATION.

The entrance examinations take place the first Monday in April, and embrace the following subjects:

(1.) The English Language, including Grammar, Analysis and Composition.

(2.) Arithmetic, Elementary Algebra and Plane Geometry.

(3.) Geography, United States History, and the outlines of General History.

(4.) Latin Grammar and Cæsar's Commentaries (or any one Latin author), or an equivalent knowledge of German, French, or one of the Scandinavian languages.

The examination certificates of the State High School Board are accepted for any of the above subjects, and the holder is accordingly excused from further examination therein.

After passing the entrance examination the candidate is entitled to apply for enrolment in the college of medicine.

II. THE SCIENTIFIC EXAMINATION.

The scientific examination follows immediately after enrollment, and embraces the following subjects:

(1.) Physical Geography.

(2.) Natural Philosophy.

(3.) Elementary Botany.

(4.) Chemistry.

This examination is conducted by a committee of the general faculty, one of whom must be a professor of this college.

The certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects except chemistry, in which greater proficiency is required.

Applicants who bring a final certificate for the scientific course of the collegiate department (end of Sophomore year) are excused from the scientific examination as well as the entrance examination.

Applicants who bring a final certificate for the classical or modern courses of the collegiate department are excused from the entrance examination and the scientific examination except in chemistry.

Baccalaureates of the college of science, literature and the arts, of mechanic arts and of agriculture in this University, and graduates of any reputable college or university are excused from the entrance and scientific examinations, and receive credit of one year on professional study.

The entrance and scientific examinations are conducted in writing, according to the rules and methods in use in the collegiate department of the University.

III. THE PROFESSIONAL EXAMINATION.

FIRST,—*Examinations for Bachelor of Medicine.*

These commence on the first Tuesday in April, and continue ten days. They are divided among the following nine departments :

(1.) Anatomy and Physiology.
(2.) Pathology.
(3.) Materia Medica and Therapeutics.
(4.) Medical Chemistry.
(5.) Preventive Medicine, personal and public hygiene.
(6.) Practice of medicine.
(7.) Surgery.
(8.) Obstetrics and diseases of women and children.
(9.) Diseases of the nervous system and medical jurisprudence.

The examinations for the degrees of bachelor of medicine are conducted in writing, but may be supplemented, at the discretion of the examiner in any case, by oral interrogations.

As prerequisite to admission to the professional examinations of the first year, each candidate must furnish—

(1.) A certificate of attendance upon one full course of lectures in some recognized college of medicine or in a school of medical instruction.

(2.) A certificate of dissection of the muscular, nervous, and circulatory systems, with the contents of the cavities of the head, throat, and abdomen.

STANDING PROGRAM FOR WRITTEN EXAMINATIONS.

	FIRST YEAR.	SECOND YEAR.	THIRD YEAR.
	Monday.	*Wednesdvy.*	*Friday.*
9:30 A. M.	Anatomy.	Pathology.	Surgery.
1:30 P. M.	Physiology.	Obstetrics.	Surgery, Clinical.
	Tuesday.	*Thursday.*	*Saturday.*
9:30 A. M.	Medical Chemistry.	Dis. of Women and Child.	Practice.
1:30 P. M.	Materia Medica, and Therapeutics.	Dis. Nervous System, and Medical Jurisprudence.	Practice, Clinical.
			Monday.
9:30 A. M.			Preventive Medicine.

Written examinations are in such form as to admit of convenient preservation. The detailed regulations for conducting these examinations are made known at the opening.

Examinees conform to requirements intended to protect them against suspicion or suggestion of having submitted answers not their own production on the spot.

Any person detected in any dishonesty in his examination is at once stricken from the roll of candidates.

SECOND,—*Examinations for the Degree of Doctor of Medicine.*

This examination consists in each ease essentially of a thesis and its defense, but the faculty will demand in all cases clinical and practical tests and operations, which shall enable the examiners to decide not merely upon the scholastic proficiency of the candidates, but upon their actual professional skill.

All theses must be on subjects approved by the faculty, must be founded on original work, and certified as the unaided productions of the candidates. Twenty-five printed copies of each thesis must be furnished to the faculty before reading and defense.

All theses to be defended in the April term must be submitted to the dean of the faculty on or before the second Monday in March. It is advised that the type-writing machine be used for making the copy. The printed copies required to be made after approval of the thesis, shall be on the same size paper as this pamphlet, and the paper shall be white and of the quality as good as that used by the State of Minnesota. The size of the page shall be 22 x 38 ems, pica.

The faculty will make a calendar of theses, and publish the same on the fourth Monday in April term (second Monday of term).

GRADUATION.

Graduation takes place at the annual commencement of the University, near the first of June.

All candidates who pass the entrance, scientific and professional examinations, including the appropriate clinical and experimental tests incidental thereto, and give satisfactory evidence of having attended three full courses of instruction, of not less than twenty weeks each, at a college of medicine or school of medical instruction recognized by the regents upon the recommendation of this faculty, and who are twenty-one years of age or upwards, and of good moral character, are recommended by the faculty of the college to the board of regents to receive the degree of Bachelor of Medicine (M. B.), which degree duly conferred is the warrant of the University of Minnesota for the practice of medicine and surgery.

All candidates for the first degree must furnish satisfactory evidence that they have severally pursued the study of medicine for four years in the office of and under the personal direction of a physician in active practice, who is a graduate of some college or school of medicine recognized by the board of regents upon the recommendation of the faculty of this college.

Provided, however, that

(1) One course of lectures, with other work incidental thereto, in a college of medicine recognized as above, shall be reckoned as equivalent to eight months of such study.

(2) One term of six months in a school of medical instruction, organized and conducted in conformity with the by-laws, shall be equivalent to one year of such study under a preceptor.

(3) Three courses of lectures, with work incidental thereto, in a college of medicine recognized as above, shall be equivalent to three years study under a preceptor. One year, at least, must in all cases, have been passed in a preceptor's office.

(4) Graduates of colleges and universities receive a credit of one year on professional study, in consideration of superior literary and scientific attainments.

Any Bachelor of Medicine of this University who furnishes satisfactory evidence that he has been actively engaged in professional practice for three years after his graduation, and who presents and defends a thesis in the manner prescribed, is recommended to receive the degree of Doctor of Medicine (M. D.)

Whenever the examinations for the Bachelor's degree in any case evince great proficiency in the literature, theory and practice of medicine the faculty of the college permit the candidate to present and defend a thesis; this being done to their satisfaction they recommend the candidate to receive at once the full degree of Doctor of Medicine (M. D.)

Doctors of Medicine of other colleges of medicine recognized by the board of regents upon the reommendation of the faculty of this college, are recommended to receive the degree of Doctor of Medicine of this University upon successfully defending a thesis in the manner prescribed.

The following persons passed satisfactory examinations in April, and the degree M. B. will be conferred at the next commencement, June 3d: William C. E. VanDamm, Minneapolis; A. W. Brunnell, Minneapolis; and James J. O'Reiley, Olga, Dakota.

Miss Catherine E. Burns, of Hopkins, and Mr. E. Y. Cuyningham, of Minneapolis, passed examinations in the branches of the first two years.

All communications pertaining to this department should be addressed to the Secretary, P. H. MILLARD, Stillwater, Minn.

GRADUATES.

MASTERS OF ARTS, 2.

1880

Rev. Graham Cox Campbell, B. A. 1879,	Gaboon Mission, Africa.

1881

Willis Mason West, B. A. 1879,	Duluth.

MASTERS OF SCIENCE, 2.

1882

Robert Henry Crafts, B. S. 1877,	Minneapolis.

1885

Clarence Luther Herrick, B. S., 1880,	Minneapolis.

BACHELORS OF ARTS, 76.

1873

Warren Clark Eustis,	Hennepin County.
Henry Martyn Williamson,	Nicollet "

1874

George Edwin Ricker,	Hennepin County.

1875

Andrew Russell Cass,	Canada.
Julius Elliot Miner,	Goodhue County.
*Simon Peter Starritt,	Wright "

1876

John Sinclair Clark.	Nova Scotia.
John Corrin Hutchinson,	Dakota County.
William Edward Leonard,	Hennepin "

1877

Graham Cox Campbell,	Nova Scotia.
Joel Nathaniel Childs,	Wisconsin.
Ebenezer Currie,	Fillmore County.
Frank Eustis,	Hennepin "
Fred Eustis,	" "
Stephen Mahoney,	Scott "
John Waldo Perkins,	Wright "
Charles Wilber Savidge,	LeSueur "
Albert McClure Wells,	Ramsey "

1878

Julian Clarence Bryant,	Nicollet County,
John Hamilton Lewis,	Wright "
Thomas Rogers Newton,	Hennepin "
Evan Roland Pritchard,	Blue Earth "
Daniel Williams,	Iowa.

1879

John Franklin Collom,	Hennepin County.
—Etta Medora Elliott,	" "
John Finley Goodnow,	" "
Frank Smith McKean,	Washington "

Robert William Rhames,	Olmstead "
Chelsea Joseph Rockwood,	Blue Earth "
George Burt Thompson,	Hennepin "
Willis Mason West,	Stearns "

1880

—Cora Inez Brown,	Hennepin County.
James Francis Bryant,	Nicollet "
Albert William Rankin,	" "
Wm, Wadsworth Williams,	Iowa.

1881

George Briggs Aiton,	Nicollet County.
Samuel Gilmore Anderson,	Hennepin
Otway Wilkinson Baldwin,	Wright "
*William Cullen Bryant,	Nicollet "
Herbert Oscar Chowen,	Hennepin "
—Emily Louise Hough,	Pensylvania.
Charles Edward Kent,	Ohio.
William Leslie King,	Blue Earth County.
Quinton John Rowley,	Freeborn
Fred Beal Snyder,	Hennepin

1882

James Bennett Gould,	Hennepin County.
Frank Healy,	Filmore "
Andrew Franklin Hillyer,	Hennepin "
—Carrie Warner Holt,	Fillmore "
—*Lydia Rossiter Holt,	" "
—Francis Ada Knox,	Blue Earth "
Frank Nichols Leavens,	Rice "
Alexander Hamilton Nunn,	Dodge "
Eli Milton Skiff Pickett,	Freeborn "
Charles Myron Webster,	Goodhue "
Jesse Craig Wilson,	Rice "

1883

Edward Payson Baldwin,	Dakota "
William Eastman Fay,	Massachusetts.
Edson Star Gaylord,	Hennepin County.
David Percy Jones,	" "
Joseph Henry Lobke,	Stearns "
—Helen Louise Pierce,	Olmsted "
—Martha Alma Sheldon,	Hennepin "
Sumner Lincoln Trussell,	" "

1884

Elmer Ellsworth Adams,	Vermont.
Patrick Joseph Butler,	Hennepin County.
Oscar Firkins,	" "
Joseph Henry Capper Hutchinson,	Dakota "
Anthony Johnson,	Houston "
Eli Larson,	" "
—Hannah Robie Sewall,	Ramsey "
—Susan Winifred Sewall,	" "
Zenas Newton Vaughn,	Mower "

1885

—Mary Lathrop Benton,	Hennepin County.
Samuel Solfest Langland,	Martin "
Charles William Moulton,	Ohio.

BACHELORS IN SCIENCE. 76.

1874

Edward Chatfield,	Fillmore County.

1875

Samuel Addison Rank,	Fillmore County.
Clark Stewart,	Hennepin "

1876

—Martha Appleton Butler,	Maine.
Robert Henry Crafts,	Hennepin County.
Lewis Singer Gillette,	Michigan.
Eugene Alvin Hendrickson,	Ramsey County,
William Herod Locke,	Hennepin "

1877

Albert Preston Hendrickson,	Ramsey County.
*John Charles Kassube,	Hennepin "
Edwin Burnham Pribble,	" "

1878

Fred Leslie Couillard,	Hennepin County.
—Nettie Getchell,	" "
Judson Torrey Howell,	Houston "
Henry Clay Leonard, (B. C. E., '75,)	Hennepin County.
—Mary Warwick Robinson,	Hennepin "
Hervey J. Smith,	Goodhue "
Myron DeVere Taylor,	Stearns "
Wm. John Warren,	Rice "

1879

Walter Barrett,	Dodge "
Fred Capin Bowman,	Meeker "
—Catherine Amelia Burnes,	Hennepin "
Timothy Edward Byrnes,	Meeker "
—Evelyn May Champlin,	Hennepin "
*Addison Gage, Jr.	Anoka "
Allen Jay Greer,	Wabasha "
—Laura Alberta Linton,	" "
George Henry Partridge,	Winona "
—Etta Thompson,	Hennepin "

1880

*Frederick Gerald Berry,	Hennepin County.
Horace Burnham Greeley,	Blue Earth "
Clarence Luther Herrick,	Hennepin "
Robert Peter Andrew Nix,	Brown "
—Minnie Aurora Reynolds,	Clay "
Alva Lucius Roe,	Washington "
Gilman Walter Smith,	Goodhue "
Harvey Page Smith,	" "
—Lillian Sanborn Todd,	Hennepin "

1881

Fred Leslie Bardwell,	Hennepin County.
*Herbert John Broughton,	" "
--Dianna Burnes,	" "
George Sutherland Grimes,	" "
James Jennison,	Goodhue "
David Albert Locke,	Hennepin "
Samuel Allen Locke,	" "
--Sarah Ellen Palmer,	Mower "
William Hines Savidge,	LeSueur "
—Lilla Ruth Williams,	Blue Earth "

1882

George Joseph Backus,	Goodhue County.
William Wyckoff Clark,	Blue Earth "

—Alice Elizabeth Demmon,	Vermont.
—Carrie Delania Fletcher,	Ramsey County.
William Beans Linton,	Wabasha "
Henry Francis Nachtrieb,	Washington "
Rasselas Hamlin Prosser,	Fillmore "
Herbert Paine Shumway,	" "
Edward Duffield Neill Whitney,	Hennepin "

1883

Robert Mowry Bell,	Hennepin County.
Frederick Henry Clark,	Massachusetts.
—Louise Elmer Hollister,	Lincoln County.
Edward Croydon Jones,	Hennepin "
George Nelson Salisbury,	Rice "
Charles Frederick Sidener,	Goodhue "
—Emma Jane Ware,	Fillmore "

1884

Nathan Morton Baker, Jr.,	Nicollet County.
Jeremiah Ignatious Donohue,	Fillmore "
George Lorenzo Hendrickson,	Ramsey "
George Horace Klepper,	Freeborn "
—Bessie Laythe,	Fillmore "
James Eugene Manchester,	Steele "
Henry Hastings Sibley Rowell,	Hennepin "
Charles Christian Schmidt,	Brown "
—Emma Zwinggi,	Nicollet "

1885

James Gray,	Hennepin County.
Cassius Marcius Locke,	" "
Curtis Langdon Greenwood,	Goodhue "

BACHELORS IN LITERATURE. 50.

1875

—Helen Mar Ely,	Winona County.

1877

—Matilda Jane Campbell,	Maine.
—Viola Fuller,	Mower County.
—*Charlotte Adelaide Rollit,	Hennepin "
—Mary Anna Maes,	Steele "

1878

George Albert Wood,	Fillmore County.

1879

William Lincoln Bassett,	Hennepin "
Alvin Hildreth,	Freeborn "
William Winchester Keysor,	Blue Earth "
—Marion Hooker Roe,	Washington "
—Caroline Rollit,	Hennepin "
—Martha Isabel West,	" "

1880

Andrew Holt,	Carver County.
Joseph Elisha Horton,	Fillmore "
—Lizzie Augusta House,	Hennepin "
—Bessie Summer Lawrence,	" "

1881

Harlow Horace Bonniwell,	McLeod County.
—Margaret Agnes Campbell,	Nova Scotia.
—Lettie May Crafts,	Hennepin County.
—Emma Elizabeth Grimes,	" "
William Edward Harrington,	McLeod "
—Emma Ernestine Maes,	Steele "
Bradley Phillips, Jr.,	Wisconsin.

1882

—Agnes Virginia Bonniwell,	McLeod County.
—Grace Webster Curtis,	Iowa,
Arthur Edward Dickerman,	"
--Marie Louise Henry,	Hennepin County.
—Mary Eliza Holt,	Fillmore "
--Mary Nancy Hughes,	Hennepin "
Richard Hartwell Johnson,	Winona "
—Louie Lillian Kilbourn,	Hennepin "
—Emily Dana McMillan,	" "
—*Ada Eva Pillsbury,	" "
Harry Amy Strong,	Iowa.

1883

Samuel Doak Catherwood,	Mower County.
—Annie Harriet Jefferson,	Hennepin "
—Kate Louise Kennedy,	" "
—*Sarah Pierrepont McNair,	" "
—Anna Calista Marston,	" "
—Jenet Nunn,	Dodge "
—Emma Francis Trussell,	Hennepin "

1884

—Anna Helen Bonfoy,	Hennepin "
—Belle Marion Bradford,	Dakota "
--Adalyna Kingsbury,	Michigan.

1885

Howard Strickland Abbott,	Wright County.
Albert Melancthon Baldwin,	Dakota Ter.
—Bertha Minnie Brown,	Hennepin County.
--Mary Eliza Irving,	Steele "
—Ida Victoria Mann,	Hennepin "
—Mabel Lorain Smith,	LeSueur "

BACHELORS IN CIVIL ENGINEERING, 15.

1875

Henry Clay Leonard,	Fillmore Country.
Samuel Addison Rank	" "
Clark Stewart,	Hennepin "
Lewis Singer Gillette,	Michigan.
Eugene Alvin Hendrickson,	Ramsey County.
Charles Edward Thayer,	Hennepin "

1879

William Sanborn Dawley,	Wabasha County.
Pierce Power Furber,	Washington "

1883

William George Peters,	Hennepin "
Louis Orville Smith,	LeSueur "

1884

William Ricketson Hoag,	Olmstead "
George John Loy,	Carver "
Irving Webber Matthews,	Rock "
Patrick Thomas Fitzgerald,	Stevens "
Albert Irving Reed,	Dakota "

BACHELORS IN MECHANICAL ENGINEERING, 3.

1878

Charles Spencer Bushnell,	Hennepin County.

1883

John Henry Barr,	Blue Earth "

1885

Elbert Elsworth Bushnell,	Hennepin County.

BACHELORS IN ARCHITECTURE.

1877

Walter Stone Pardee,	Hennepin County.

BACHELORS IN AGRICULTURE. 2.

1882

William Johnson Barrett,	Dodge County.

1885

Thomas Ezekiel Trussell,	Hennepin County.

BACHELORS MEDICINE. 4.

1884

James Kid Simpson,	Manitoba.
Hugo Speier.	Scott County.

1885

Karl Henry E. Castle,	Ramsey County.
William Byther Pineo,	Hennepin "

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